

# SEQUENCE LISTING

<110> Majumder, Kumud  
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 Li, Li  
 Baumgartner, Jason C  
 Gusev, Vladimir

<120> Novel Proteins and Nucleic Acids Encoding Same

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<150> 60/194,614

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35 40 45  
Pro Ser Thr Val Tyr Leu Phe Asn Leu Ala Val Ala Asp Phe Leu Leu  
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Met Ile Cys Leu Pro Phe Arg Thr Asp Tyr Tyr Leu Arg Arg Arg His  
65 70 75 80

Trp Ala Phe Gly Asp Ile Pro Cys Arg Val Gly Leu Phe Thr Leu Ala  
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 His Asp Ile Met Phe Gln Leu Glu Phe Phe Met Pro Leu Gly Ile Ile  
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 195 200 205  
 Leu Ala Arg Gln Ala Arg Met Lys Lys Ala Thr Arg Phe Ile Met Val  
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 Val Ala Ile Val Phe Ile Thr Cys Tyr Leu Pro Ser Val Ser Ala Arg  
 225 230 235 240  
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 245 250 255  
 His Gly Ala Leu His Ile Thr Leu Ser Phe Thr Tyr Met Asn Ser Met  
 260 265 270  
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 Tyr Asn Lys Leu Lys Ile Cys Ser Leu Lys Pro Lys Gln Pro Gly His  
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gcttccacat gaagacctgg aagcccagca ctgtttacct tttcaatttg gccgtggctg 240
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Asn Gly Val Ala Leu Cys Gly Phe Cys Phe His Met Lys Thr Trp Lys
      35             40             45
Pro Ser Thr Val Tyr Leu Phe Asn Leu Ala Val Ala Asp Phe Leu Leu
      50             55             60
Met Ile Cys Leu Pro Phe Arg Thr Asp Tyr Tyr Leu Arg Arg Arg His
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 Arg Tyr Phe Lys Val Val His Pro His His Ala Val Asn Thr Ile Ser  
 115 120 125  
 Thr Arg Val Ala Ala Gly Ile Val Cys Thr Leu Trp Ala Leu Val Ile  
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 Val Ala Ile Val Phe Ile Thr Cys Tyr Leu Pro Ser Val Ser Ala Arg  
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 245 250 255  
 His Gly Ala Leu His Ile Thr Leu Ser Phe Thr Tyr Met Asn Ser Met  
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 275 280 285  
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 Ser Lys Thr Gln Arg Pro Glu Glu Met Pro Ile Ser Asn Leu Gly Arg  
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gctcttgact tcaaattggcc cttcggcaag gccatgtgta agatcgtgtc catggtgacg 480
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Ala Asn Thr Ser Gly Asn Ala Ser Leu Gln Leu Pro Asp Leu Trp Trp
          35             40             45

Glu Leu Gly Leu Glu Leu Pro Asp Gly Ala Pro Pro Gly His Pro Pro
          50             55             60

Gly Ser Gly Gly Ala Glu Ser Ala Asp Thr Glu Ala Arg Val Arg Ile
          65             70             75             80

Leu Ile Ser Val Val Tyr Trp Val Val Cys Ala Leu Gly Leu Ala Gly
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Asn Leu Leu Val Leu Tyr Leu Met Lys Ser Met Gln Gly Trp Arg Lys
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Ser Ser Ile Asn Leu Phe Val Thr Asn Leu Ala Leu Thr Asp Phe Gln
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Phe Val Leu Thr Leu Pro Phe Trp Ala Val Glu Asn Ala Leu Asp Phe
          130            135            140

Lys Trp Pro Phe Gly Lys Ala Met Cys Lys Ile Val Ser Met Val Thr
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Ser Met Asn Met Tyr Ala Ser Val Phe Phe Leu Thr Ala Met Ser Val
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Thr Arg Tyr His Ser Val Ala Ser Ala Leu Lys Ser His Arg Thr Arg
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Gly His Gly Arg Gly Asp Cys Cys Gly Arg Ser Leu Gly Asp Ser Cys
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| Cys | Phe | Ser | Ala | Lys | Ala | Leu | Cys | Val | Trp | Ile | Trp | Ala | Leu | Ala | Ala |
| 210 |     |     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     |
| Leu | Ala | Ser | Leu | Pro | Ser | Ala | Ile | Phe | Ser | Thr | Thr | Val | Lys | Val | Met |
| 225 |     |     |     |     | 230 |     |     |     |     | 235 |     |     |     |     | 240 |
| Gly | Glu | Glu | Leu | Cys | Thr | Gly | Ala | Phe | Pro | Gly | Gln | Val | Ala | Gly | Pro |
|     |     |     | 245 |     |     |     |     |     | 250 |     |     |     |     | 255 |     |
| Arg | Gln | Ala | Val | Leu | Ala | Gly | Pro | Leu | Pro | Leu | Ala | Glu | Glu | Ala | Ala |
|     |     |     | 260 |     |     |     |     | 265 |     |     |     |     | 270 |     |     |
| Gly | Val | Pro | Ala | Tyr | Leu | Ala | Tyr | Ile | Phe | Ile | Pro | Lys | Gln | Phe | Phe |
|     | 275 |     |     |     |     |     | 280 |     |     |     |     | 285 |     |     |     |
| Arg | Ser | Leu | Pro | Leu | Ser | Tyr | Asp | Leu | Leu | Tyr | Phe | Pro | Pro | Leu | Ser |
|     | 290 |     |     |     |     | 295 |     |     |     |     | 300 |     |     |     |     |
| Tyr | Pro | Ser | Val | Ile | Arg | Asn | Ile | Ser | Ser | Leu | Pro | Pro | Gln | His | Asp |
| 305 |     |     |     |     | 310 |     |     |     |     | 315 |     |     |     |     | 320 |
| Lys | Pro | Arg | Arg | Thr | Trp | Cys | Pro | Pro | Pro | Trp | Thr | Gly | Pro | Ala | Ser |
|     |     |     |     | 325 |     |     |     |     | 330 |     |     |     |     | 335 |     |
| Pro | Asp | Gln | Ile | Glu | Asn | Thr | Tyr | Arg | Phe | Ala | Thr | Cys | Tyr | Val | His |
|     |     |     | 340 |     |     |     |     | 345 |     |     |     |     | 350 |     |     |
| His | Tyr | Glu | Phe | Leu | Ala | Phe | Lys | Ser | Asn | Arg | Phe | Ser | Gly | Thr | Ser |
|     | 355 |     |     |     |     |     | 360 |     |     |     |     | 365 |     |     |     |
| Leu | Gly | Thr | Gln | Thr | Pro | Phe | Lys | Pro | Trp | Glu | Ser | Met | Phe |     |     |
|     | 370 |     |     |     |     | 375 |     |     |     |     | 380 |     |     |     |     |

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 ctgtgcttgt ggccatggcc tatgattgct atgtggccat ctgtgacct ctttgctaca 420  
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Val Phe Leu Thr Ala Val Leu Gly Asn Ile Thr Ile Leu Phe Val Ile  
35 40 45  
Gln Thr Asp Ser Ser Leu His His Pro Met Phe Tyr Phe Leu Ala Ile  
50 55 60  
Leu Ser Ser Ile Asp Pro Gly Leu Ser Thr Ser Thr Ile Pro Lys Met  
65 70 75 80  
Leu Gly Thr Phe Trp Phe Thr Leu Arg Glu Ile Ser Phe Glu Gly Cys  
85 90 95  
Leu Thr Gln Met Phe Phe Ile His Leu Cys Thr Gly Met Glu Ser Ala  
100 105 110  
Val Leu Val Ala Met Ala Tyr Asp Cys Tyr Val Ala Ile Cys Asp Pro  
115 120 125  
Leu Cys Tyr Thr Leu Val Leu Thr Asn Lys Val Val Ser Val Met Ala  
130 135 140  
Leu Ala Ile Phe Leu Arg Pro Leu Val Phe Val Ile Pro Phe Val Leu  
145 150 155 160  
Phe Ile Leu Arg Leu Pro Phe Cys Gly His Gln Ile Ile Pro His Thr  
165 170 175  
Tyr Gly Glu His Met Gly Ile Ala Arg Leu Ser Cys Ala Ser Ile Arg  
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Val Asn Ile Ile Tyr Gly Leu Cys Ala Ile Ser Ile Leu Val Phe Asp  
195 200 205  
Ile Ile Ala Ile Val Ile Ser Tyr Val Gln Ile Leu Cys Ala Val Phe  
210 215 220  
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225 230 235 240  
Ser His Val Cys Val Met Leu Thr Phe Tyr Met Pro Ala Phe Phe Ser  
245 250 255  
Phe Met Thr His Arg Phe Gly Arg Asn Ile Pro His Phe Ile His Ile  
260 265 270  
Leu Leu Ala Asn Phe Tyr Val Val Ile Pro Pro Ala Leu Asn Ser Val  
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<210> 11  
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 Phe Cys Leu Ala Tyr Leu Val Ala Phe Met Gly Asn Val Thr Ile Leu  
 35 40 45  
 Ser Val Ile Trp Ile Glu Ser Ser Leu His Gln Pro Met Tyr Tyr Phe  
 50 55 60  
 Ile Ser Ile Leu Ala Val Asn Asp Leu Gly Met Ser Leu Ser Thr Leu  
 65 70 75 80  
 Pro Thr Met Leu Ala Val Leu Trp Leu Asp Ala Pro Glu Ile Gln Ala  
 85 90 95  
 Ser Ala Cys Tyr Ala Gln Leu Phe Phe Ile His Thr Phe Thr Phe Leu  
 100 105 110  
 Glu Ser Ser Val Leu Leu Ala Met Ala Phe Asp Arg Phe Val Ala Ile  
 115 120 125  
 Cys His Pro Leu His Tyr Pro Thr Ile Leu Thr Asn Ser Val Ile Gly  
 130 135 140  
 Lys Ile Gly Leu Ala Cys Leu Leu Arg Ser Leu Gly Val Val Leu Pro  
 145 150 155 160  
 Thr Pro Leu Leu Leu Arg His Tyr His Tyr Cys His Gly Asn Ala Leu  
 165 170 175

Ser His Ala Phe Cys Leu His Gln Asp Val Leu Arg Leu Ser Cys Thr  
180 185 190

Asp Ala Arg Thr Asn Ser Ile Tyr Gly Leu Cys Val Val Ile Ala Thr  
195 200 205

Leu Gly Val Asp Ser Ile Phe Ile Leu Leu Ser Tyr Val Leu Ile Leu  
210 215 220

Asn Thr Val Leu Asp Ile Ala Ser Arg Glu Glu Gln Leu Lys Ala Leu  
225 230 235 240

Asn Thr Cys Val Ser His Ile Cys Val Val Leu Ile Phe Phe Val Pro  
245 250 255

Val Ile Gly Val Ser Met Val His Arg Phe Gly Lys His Leu Ser Pro  
260 265 270

Ile Val His Ile Leu Met Ala Asp Ile Tyr Leu Leu Leu Pro Pro Val  
275 280 285

Leu Asn Pro Ile Val Tyr Ser Val Arg Thr Lys Gln Ile Arg Leu Gly  
290 295 300

Ile Leu His Lys Phe Val Leu Arg Arg Arg Phe  
305 310 315

<210> 12  
<211> 994  
<212> DNA  
<213> Homo sapiens

<400> 12  
tgctgaatta ctcaaagtca ctatgggaga ctggaataac agtgatgctg tggagcccat 60  
atztatcctg aggggttttc ctggactgga gtatgttcat tcttggtctt ccattcctctt 120  
ctgtcttgca tatttggtag catttatggg taatgttacc atcctgtctg tcatttggat 180  
agaatcctct ctccatcagc ccattgtatta ctttatttcc atcttggcag tgaatgacct 240  
gggatgtcc ctgtctacac ttcccaccat gcttgctgtg ttatggttgg atgctccaga 300  
gatccaggca agtgcttgct atgctcagct gttcttcatc cacacattca cattcctgga 360  
gtcctcagtg ttgctggcca tggccttga ccgttttgtt gctatctgcc atccactgca 420  
ctacccacc atcctcacca acagtgaat tggcaaaatt gggttggcct gtttgctacg 480  
aagcttggga gttgtacttc ccacaccttt gctactgaga cactatcact actgccatgg 540  
caatgccctc tctcacgcct tctgtttgca ccaggatgtt ctaagattat cctgtacaga 600  
tgccaggacc aacagtattt atgggctttg tgtagtcatt gccacactag gtgtggattc 660  
aatcttcata cttctttctt atgttctgat tcttaatact gtgctggata ttgcatctcg 720  
tgaagagcag ctaaaggcac tcaacacatg tgtatcccat atctgtgtgg tgcttatctt 780  
ctttgtgcca gttattgggg tgtcaatggg ccategcttt gggaagcacc tgtctcccat 840  
agtccacatc ctcatggcag acatgtacct tcttcttccc ccagtcctta accctattgt 900  
ctatagtgtc agaacaaagc agattcgtct aggaattctc cacaagtttg tcctaaggag 960  
gagggttttaa gtaacctctg tctccaact ttcc 994

<210> 13  
<211> 315  
<212> PRT  
<213> Homo sapiens

<400> 13  
Met Gly Asp Trp Asn Asn Ser Asp Ala Val Glu Pro Ile Phe Ile Leu  
1 5 10 15

Arg Gly Phe Pro Gly Leu Glu Tyr Val His Ser Trp Leu Ser Ile Leu  
 20 25 30  
 Phe Cys Leu Ala Tyr Leu Val Ala Phe Met Gly Asn Val Thr Ile Leu  
 35 40 45  
 Ser Val Ile Trp Ile Glu Ser Ser Leu His Gln Pro Met Tyr Tyr Phe  
 50 55 60  
 Ile Ser Ile Leu Ala Val Asn Asp Leu Gly Met Ser Leu Ser Thr Leu  
 65 70 75 80  
 Pro Thr Met Leu Ala Val Leu Trp Leu Asp Ala Pro Glu Ile Gln Ala  
 85 90 95  
 Ser Ala Cys Tyr Ala Gln Leu Phe Phe Ile His Thr Phe Thr Phe Leu  
 100 105 110  
 Glu Ser Ser Val Leu Leu Ala Met Ala Phe Asp Arg Phe Val Ala Ile  
 115 120 125  
 Cys His Pro Leu His Tyr Pro Thr Ile Leu Thr Asn Ser Val Ile Gly  
 130 135 140  
 Lys Ile Gly Leu Ala Cys Leu Leu Arg Ser Leu Gly Val Val Leu Pro  
 145 150 155 160  
 Thr Pro Leu Leu Leu Arg His Tyr His Tyr Cys His Gly Asn Ala Leu  
 165 170 175  
 Ser His Ala Phe Cys Leu His Gln Asp Val Leu Arg Leu Ser Cys Thr  
 180 185 190  
 Asp Ala Arg Thr Asn Ser Ile Tyr Gly Leu Cys Val Val Ile Ala Thr  
 195 200 205  
 Leu Gly Val Asp Ser Ile Phe Ile Leu Leu Ser Tyr Val Leu Ile Leu  
 210 215 220  
 Asn Thr Val Leu Asp Ile Ala Ser Arg Glu Glu Gln Leu Lys Ala Leu  
 225 230 235 240  
 Asn Thr Cys Val Ser His Ile Cys Val Val Leu Ile Phe Phe Val Pro  
 245 250 255  
 Val Ile Gly Val Ser Met Val His Arg Phe Gly Lys His Leu Ser Pro  
 260 265 270  
 Ile Val His Ile Leu Met Ala Asp Met Tyr Leu Leu Leu Pro Pro Val  
 275 280 285  
 Leu Asn Pro Ile Val Tyr Ser Val Arg Thr Lys Gln Ile Arg Leu Gly  
 290 295 300  
 Ile Leu His Lys Phe Val Leu Arg Arg Arg Phe  
 305 310 315

<210> 14  
 <211> 994  
 <212> DNA  
 <213> Homo sapiens

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<400> 14
tgctgaatta ctcaaagtca ctatgggaga ctggaataac agtgatgctg tggagcccat 60
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ctgtcttgca tatttggtag catttatggg taatgttacc atcctgtctg tcatttggat 180
agaatcctct ctccatcagc ccattgtatta ctttatttcc atccttggcag tgaatgacct 240
ggggatgtcc ctgtctacac ttcccaccat gcttgcctgtg ttatggttgg atgctccaga 300
gatccaggca agtgcttgct atgctcagct gttcttcac cacaattca cattcctgga 360
gtcctcagtg ttgctggcca tggcctttga ccgttttgtt gctatctgcc atccactgca 420
ctacccacc atcctcacca acagtgtaat tggcaaaatt ggtttggcct gtttgcctacg 480
aagcttggga gttgtacttc ccacaccttt gctactgaga cactatcact actgccatgg 540
caatgccctc tctcagcct tctgtttgca ccaggatgtt ctaagattat cctgtacaga 600
tgccaggacc aacagtattt atgggctttg tgtagtcatt gccacactag gtgtggattc 660
aatcttcata cttcttttct atgttctgat tcttaatact gtgctggata ttgcatctcg 720
tgaagagcag ctaaaggcac tcaacacatg tgtatcccat atctgtgtgg tgcttatctt 780
ctttgtgcca gttattgggg tgtcaatggg ccacgccttt gggaagcatc tgtctcccat 840
agtccacatc ctcatggcag acatctacct tcttcttccc ccagtcctta accctattgt 900
ctatagtgtc agaacaaagc agattcgtct aggaattctc cacaagtttg tcctaaggag 960
gagggtttta gtaacctctg tctccaact tttc 994

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<210> 15
<211> 985
<212> DNA
<213> Homo sapiens

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<400> 15
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ctttctgctc tgtttacctt gtggctttgc tgggcaatgc caccattctg ctagtcatca 180
aggtagaaca gactctccgg gagcccatgt tctacttctt ggccattctt tccactattg 240
atttggccct ttctgcaacc tctgtgcctc gcatgctggg tatcttctgg tttgatgctc 300
acgagattaa ctatggagct tgtgtggccc agatgtttct gatccatgcc ttcactggca 360
tggaggctga ggtcttactg gctatggctt ttgaccgtta tgtggccatc tgtgtccac 420
tacattacgc aaccatcttg acatccctag tctatcttat tgttggtggg cattagcatg tgcattgtaa 480
ttcgtcccg tttacttaca cttcccattg tctatcttat ctaccgccta cctttttgtc 540
aggctcacat aatagcccat tctactgtg agcacatggg cattgcaaaa ttgtcctgtg 600
gaaacattcg tatcaatggg atctatgggc tttttgtagt ttctttcttt gttctgaacc 660
tggtgctcat tggcatctcg tatgtttaca ttctccgtgc tgtcttccgc ctcccatcac 720
atgatgtcga gctaaaagcc ctaagcacgt gtggcgctca tgttggagtc atctgtgttt 780
tctatatccc ttcagtcttc tcttcttcta ctcatcgatt tggacaccaa ataccagggt 840
acattcacat tcttgttgcc aatctctatt tgattatccc accctctctc aaccccatca 900
tttatggggg gaggaccaa cagattcgag agcgagtgtc ctatgttttt actaaaaaat 960
aagactctta ccattgtatt ttact 985

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<210> 16
<211> 311
<212> PRT
<213> Homo sapiens

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<400> 16
Met Phe Tyr His Asn Lys Ser Ile Phe His Pro Val Thr Phe Phe Leu
  1             5             10             15

Ile Gly Ile Pro Gly Leu Glu Asp Phe His Met Trp Ile Ser Gly Pro
      20             25             30

Phe Cys Ser Val Tyr Leu Val Ala Leu Leu Gly Asn Ala Thr Ile Leu
      35             40             45

Leu Val Ile Lys Val Glu Gln Thr Leu Arg Glu Pro Met Phe Tyr Phe
      50             55             60

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Leu Ala Ile Leu Ser Thr Ile Asp Leu Ala Leu Ser Ala Thr Ser Val  
 65 70 75 80  
 Pro Arg Met Leu Gly Ile Phe Trp Phe Asp Ala His Glu Ile Asn Tyr  
 85 90 95  
 Gly Ala Cys Val Ala Gln Met Phe Leu Ile His Ala Phe Thr Gly Met  
 100 105 110  
 Glu Ala Glu Val Leu Leu Ala Met Ala Phe Asp Arg Tyr Val Ala Ile  
 115 120 125  
 Cys Ala Pro Leu His Tyr Ala Thr Ile Leu Thr Ser Leu Val Leu Val  
 130 135 140  
 Gly Ile Ser Met Cys Ile Val Ile Arg Pro Val Leu Leu Thr Leu Pro  
 145 150 155 160  
 Met Val Tyr Leu Ile Tyr Arg Leu Pro Phe Cys Gln Ala His Ile Ile  
 165 170 175  
 Ala His Ser Tyr Cys Glu His Met Gly Ile Ala Lys Leu Ser Cys Gly  
 180 185 190  
 Asn Ile Arg Ile Asn Gly Ile Tyr Gly Leu Phe Val Val Ser Phe Phe  
 195 200 205  
 Val Leu Asn Leu Val Leu Ile Gly Ile Ser Tyr Val Tyr Ile Leu Arg  
 210 215 220  
 Ala Val Phe Arg Leu Pro Ser His Asp Ala Gln Leu Lys Ala Leu Ser  
 225 230 235 240  
 Thr Cys Gly Ala His Val Gly Val Ile Cys Val Phe Tyr Ile Pro Ser  
 245 250 255  
 Val Phe Ser Phe Leu Thr His Arg Phe Gly His Gln Ile Pro Gly Tyr  
 260 265 270  
 Ile His Ile Leu Val Ala Asn Leu Tyr Leu Ile Ile Pro Pro Ser Leu  
 275 280 285  
 Asn Pro Ile Ile Tyr Gly Val Arg Thr Lys Gln Ile Arg Glu Arg Val  
 290 295 300  
 Leu Tyr Val Phe Thr Lys Lys  
 305 310

<210> 17  
 <211> 947  
 <212> DNA  
 <213> Homo sapiens

<400> 17  
 tgaaaaatgt tttatcacaa caagagcata tttcacccag tcacattttt cctcattgga 60  
 atcccaggtc tggaaagactt ccacatgtgg atctccgggc ctttctgctc tgtttacctt 120  
 gtggctttgc tgggcaatgc caccattctg ctagtcatca aggtagaaca gactctccgg 180  
 gagcccatgt tctacttctt ggccattctt tccactattg atttgccctt ttctacaacc 240  
 tctgtgcctc gcatgctggg tatcttctgg tttgatgctc acgagattaa ctatggagct 300  
 tgtgtggccc agatgtttct gatccatgcc ttcactggca tggaggctga ggtcttactg 360  
 gctatggctt ttgaccgta tgtggcgcgc tgtgctccac tacattacgc aaccatcttg 420  
 acatccaag tgttggtggg cattagcatg tgcattgtaa tccgtcccg tttacttaca 480

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cttcccatgg tctatcttat ctaccgccta cccttttgtc aggctcacat aatagcccat 540
tcctactgtg agcacatggg cattgcaaaa ttgtcctgtg gaaacattcg tatcaatggg 600
atctatgggc tttttgtagt ttctttcttt gttctgaacc tgggtgctcat tggcatctcg 660
tatgtttaca ttctccgtgc tgtcttcgc ctcccatcac atgatgctca gctaaaagcc 720
ctaagcacgt gtggcgctca tgttgagtc atctgtgttt tctatatccc ttcagtcttc 780
tctttcctta ctcatcgatt tggacaccaa ataccagggt acattcacat tcttgttgcc 840
aatctctatt tgattatccc accctctctc aaccccatca tttatggggg gaggacaaa 900
cagattcgag aacgagtgtc ctatgttttt actaaaaaat aagacta 947

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<210> 18  
 <211> 311  
 <212> PRT  
 <213> Homo sapiens

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<400> 18
Met Phe Tyr His Asn Lys Ser Ile Phe His Pro Val Thr Phe Phe Leu
  1              5              10              15

Ile Gly Ile Pro Gly Leu Glu Asp Phe His Met Trp Ile Ser Gly Pro
      20              25              30

Phe Cys Ser Val Tyr Leu Val Ala Leu Leu Gly Asn Ala Thr Ile Leu
      35              40              45

Leu Val Ile Lys Val Glu Gln Thr Leu Arg Glu Pro Met Phe Tyr Phe
      50              55              60

Leu Ala Ile Leu Ser Thr Ile Asp Leu Ala Leu Ser Thr Thr Ser Val
      65              70              75              80

Pro Arg Met Leu Gly Ile Phe Trp Phe Asp Ala His Glu Ile Asn Tyr
      85              90              95

Gly Ala Cys Val Ala Gln Met Phe Leu Ile His Ala Phe Thr Gly Met
      100             105             110

Glu Ala Glu Val Leu Leu Ala Met Ala Phe Asp Arg Tyr Val Ala Val
      115             120             125

Cys Ala Pro Leu His Tyr Ala Thr Ile Leu Thr Ser Gln Val Leu Val
      130             135             140

Gly Ile Ser Met Cys Ile Val Ile Arg Pro Val Leu Leu Thr Leu Pro
      145             150             155             160

Met Val Tyr Leu Ile Tyr Arg Leu Pro Phe Cys Gln Ala His Ile Ile
      165             170             175

Ala His Ser Tyr Cys Glu His Met Gly Ile Ala Lys Leu Ser Cys Gly
      180             185             190

Asn Ile Arg Ile Asn Gly Ile Tyr Gly Leu Phe Val Val Ser Phe Phe
      195             200             205

Val Leu Asn Leu Val Leu Ile Gly Ile Ser Tyr Val Tyr Ile Leu Arg
      210             215             220

Ala Val Phe Arg Leu Pro Ser His Asp Ala Gln Leu Lys Ala Leu Ser
      225             230             235             240

Thr Cys Gly Ala His Val Gly Val Ile Cys Val Phe Tyr Ile Pro Ser
      245             250             255

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Val Phe Ser Phe Leu Thr His Arg Phe Gly His Gln Ile Pro Gly Tyr  
260 265 270

Ile His Ile Leu Val Ala Asn Leu Tyr Leu Ile Ile Pro Pro Ser Leu  
275 280 285

Asn Pro Ile Ile Tyr Gly Val Arg Thr Lys Gln Ile Arg Glu Arg Val  
290 295 300

Leu Tyr Val Phe Thr Lys Lys  
305 310

<210> 19  
<211> 945  
<212> DNA  
<213> Homo sapiens

<400> 19  
gaaaaatggt ttatcacaac aagagcatat ttcacccagt cacatttttc ctcatggaa 60  
tcccagggtct ggaagacttc cacatgtgga tctccgggcc tttctgctct gtttaccttg 120  
cggttttgct gggcaatgcc accattctgc tagtcatcaa ggtagaacag actctccggg 180  
agcccatggt ctacttcctg gccattcttt ccactattga tttggccctt tctacaacct 240  
ctgtgcctcg catgctgggt atcttctggt ttgatgctca cgagattaac tatggagctt 300  
gtgtggccca gatgtttctg atccatgcct tcactggcat ggaggctgag gtcttactgg 360  
ctatggcttt tgaccgttat gtggcgtct gtgctccact acattacgca accatcttga 420  
catcccaagt gttggtgggc attagcatgt gcattgtaat tcgtcccggt ttacttacac 480  
ttcccatggt ctatcttacc taccgcctac cttttgtca ggctcacata atagccatt 540  
cctactgtga gcacatgggc attgcaaaat tgtcctgtgg aaacattcgt atcaatggta 600  
tctatgggct tttttagtatt tctttctttg ttctgaacct ggtgctcatt ggcatctcgt 660  
atgtttacat tctcgtgct gtcttcgcc tcccatcaca tgatgctcag ctaaaagccc 720  
taagcacgtg tggcgtcat gttggagtca tctgtgttt ctatatccct tcagtcttct 780  
ctttccttac tcatcgattt ggacaccaa taccagggtta cattcacatt cttgttgcca 840  
atctctatctt gattatccca cctctctca accccatcat ttatgggggtg aggaccaaac 900  
agattcgaga acgagtgtct tatgttttta ctaaaaaata agact 945

<210> 20  
<211> 311  
<212> PRT  
<213> Homo sapiens

<400> 20  
Met Phe Tyr His Asn Lys Ser Ile Phe His Pro Val Thr Phe Phe Leu  
1 5 10 15

Ile Gly Ile Pro Gly Leu Glu Asp Phe His Met Trp Ile Ser Gly Pro  
20 25 30

Phe Cys Ser Val Tyr Leu Ala Ala Leu Leu Gly Asn Ala Thr Ile Leu  
35 40 45

Leu Val Ile Lys Val Glu Gln Thr Leu Arg Glu Pro Met Phe Tyr Phe  
50 55 60

Leu Ala Ile Leu Ser Thr Ile Asp Leu Ala Leu Ser Thr Thr Ser Val  
65 70 75 80

Pro Arg Met Leu Gly Ile Phe Trp Phe Asp Ala His Glu Ile Asn Tyr  
85 90 95

Gly Ala Cys Val Ala Gln Met Phe Leu Ile His Ala Phe Thr Gly Met  
15

| 100  | 105                                    | 110     |
|--|--|---------|
| Glu Ala Glu Val Leu Leu Ala Met<br>115                                 | Ala Phe Asp Arg Tyr Val Ala Val<br>120 | 125     |
| Cys Ala Pro Leu His Tyr Ala Thr Ile Leu Thr Ser Gln Val Leu Val<br>130 | 135                                    | 140     |
| Gly Ile Ser Met Cys Ile Val Ile Arg Pro Val Leu Leu Thr Leu Pro<br>145 | 150                                    | 155 160 |
| Met Val Tyr Leu Ile Tyr Arg Leu Pro Phe Cys Gln Ala His Ile Ile<br>165 | 170                                    | 175     |
| Ala His Ser Tyr Cys Glu His Met Gly Ile Ala Lys Leu Ser Cys Gly<br>180 | 185                                    | 190     |
| Asn Ile Arg Ile Asn Gly Ile Tyr Gly Leu Phe Val Val Ser Phe Phe<br>195 | 200                                    | 205     |
| Val Leu Asn Leu Val Leu Ile Gly Ile Ser Tyr Val Tyr Ile Leu Arg<br>210 | 215                                    | 220     |
| Ala Val Phe Arg Leu Pro Ser His Asp Ala Gln Leu Lys Ala Leu Ser<br>225 | 230                                    | 235 240 |
| Thr Cys Gly Ala His Val Gly Val Ile Cys Val Phe Tyr Ile Pro Ser<br>245 | 250                                    | 255     |
| Val Phe Ser Phe Leu Thr His Arg Phe Gly His Gln Ile Pro Gly Tyr<br>260 | 265                                    | 270     |
| Ile His Ile Leu Val Ala Asn Leu Tyr Leu Ile Ile Pro Pro Ser Leu<br>275 | 280                                    | 285     |
| Asn Pro Ile Ile Tyr Gly Val Arg Thr Lys Gln Ile Arg Glu Arg Val<br>290 | 295                                    | 300     |
| Leu Tyr Val Phe Thr Lys Lys<br>305                                     | 310                                    |         |

<210> 21  
 <211> 1012  
 <212> DNA  
 <213> Homo sapiens

<400> 21  
 gcattcacaa gcaggatggt ccttcccaat gacacccagt ttcacccctc ctccttctctg 60  
 ttgctgggga tcccaggact agaaacactt cacatctgga tcggctttcc cttctgtgct 120  
 gtgtacatga tcgcactcat agggaacttc actattctac ttgtgatcaa gactgacagc 180  
 agcctacacc agcccatggt ctacttcctg gccatggttg ccaccactga tgtgggtctc 240  
 tcaacagcta ccatccctaa gatgcttgga atcttctgga tcaacctcag agggatcatc 300  
 tttgaagcct gcctcaccca gatgtttttt atccacaact tcacacttat ggagtcagca 360  
 gtccttggtg caatggctta tgacagctat gtggccatct gcaatccact ccaatatagc 420  
 gccatcctca ccaacaaggt tgtttctgtg attggctctg gtgtgtttgt gagggcttta 480  
 attttcgtca ttccctctat acttcttata ttgcggttgc cttctgtggg gaatcatgta 540  
 attccccaca cctactgtga gcacatgggt cttgtctcat tatcttgtgc cagcatcaaa 600  
 atcaatatta tttatggttt atgtgccatt tgtaatctgg tgtttgacat cacagtcatt 660  
 gccctctctt atgtgcatat tctttgtgct gttttcogtc ttctactca tgagccccga 720  
 ctcaagtccc tcagcacatg tggttcacat gtgtgtgtaa tccttgctt ctatacaca 780  
 gccctctttt cctttatgac tcattgcttt ggccgaaatg tgccccgcta tatccatata 840  
 ctctagcca atctctatgt tgtggtgcca ccaatgctca atctgtcat atatggagtc 900



agaaccaagc agatctataa atgtgtaaag aaaatattat tgcaggaaca aggaatggaa 960  
aaggaagagt acctaataca tacgaggttc tgaatgcaat tttatgaaat tt 1012

<210> 22  
<211> 325  
<212> PRT  
<213> Homo sapiens

<400> 22

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Phe | Leu | Pro | Asn | Asp | Thr | Gln | Phe | His | Pro | Ser | Ser | Phe | Leu | Leu | 1   | 5   | 10  | 15  |
| Leu | Gly | Ile | Pro | Gly | Leu | Glu | Thr | Leu | His | Ile | Trp | Ile | Gly | Phe | Pro | 20  | 25  | 30  |     |
| Phe | Cys | Ala | Val | Tyr | Met | Ile | Ala | Leu | Ile | Gly | Asn | Phe | Thr | Ile | Leu | 35  | 40  | 45  |     |
| Leu | Val | Ile | Lys | Thr | Asp | Ser | Ser | Leu | His | Gln | Pro | Met | Phe | Tyr | Phe | 50  | 55  | 60  |     |
| Leu | Ala | Met | Leu | Ala | Thr | Thr | Asp | Val | Gly | Leu | Ser | Thr | Ala | Thr | Ile | 65  | 70  | 75  | 80  |
| Pro | Lys | Met | Leu | Gly | Ile | Phe | Trp | Ile | Asn | Leu | Arg | Gly | Ile | Ile | Phe | 85  | 90  | 95  |     |
| Glu | Ala | Cys | Leu | Thr | Gln | Met | Phe | Phe | Ile | His | Asn | Phe | Thr | Leu | Met | 100 | 105 | 110 |     |
| Glu | Ser | Ala | Val | Leu | Val | Ala | Met | Ala | Tyr | Asp | Ser | Tyr | Val | Ala | Ile | 115 | 120 | 125 |     |
| Cys | Asn | Pro | Leu | Gln | Tyr | Ser | Ala | Ile | Leu | Thr | Asn | Lys | Val | Val | Ser | 130 | 135 | 140 |     |
| Val | Ile | Gly | Leu | Gly | Val | Phe | Val | Arg | Ala | Leu | Ile | Phe | Val | Ile | Pro | 145 | 150 | 155 | 160 |
| Ser | Ile | Leu | Leu | Ile | Leu | Arg | Leu | Pro | Phe | Cys | Gly | Asn | His | Val | Ile | 165 | 170 | 175 |     |
| Pro | His | Thr | Tyr | Cys | Glu | His | Met | Gly | Leu | Ala | His | Leu | Ser | Cys | Ala | 180 | 185 | 190 |     |
| Ser | Ile | Lys | Ile | Asn | Ile | Ile | Tyr | Gly | Leu | Cys | Ala | Ile | Cys | Asn | Leu | 195 | 200 | 205 |     |
| Val | Phe | Asp | Ile | Thr | Val | Ile | Ala | Leu | Ser | Tyr | Val | His | Ile | Leu | Cys | 210 | 215 | 220 |     |
| Ala | Val | Phe | Arg | Leu | Pro | Thr | His | Glu | Pro | Arg | Leu | Lys | Ser | Leu | Ser | 225 | 230 | 235 | 240 |
| Thr | Cys | Gly | Ser | His | Val | Cys | Val | Ile | Leu | Ala | Phe | Tyr | Thr | Pro | Ala | 245 | 250 | 255 |     |
| Leu | Phe | Ser | Phe | Met | Thr | His | Cys | Phe | Gly | Arg | Asn | Val | Pro | Arg | Tyr | 260 | 265 | 270 |     |
| Ile | His | Ile | Leu | Leu | Ala | Asn | Leu | Tyr | Val | Val | Val | Pro | Pro | Met | Leu | 275 | 280 | 285 |     |

Asn Pro Val Ile Tyr Gly Val Arg Thr Lys Gln Ile Tyr Lys Cys Val  
 290 295 300

Lys Lys Ile Leu Leu Gln Glu Gln Gly Met Glu Lys Glu Glu Tyr Leu  
 305 310 315 320

Ile His Thr Arg Phe  
 325

<210> 23  
 <211> 1012  
 <212> DNA  
 <213> Homo sapiens

<400> 23  
 gcattcacaa gcaggatggt ccttcccaat gacacccagt ttcacccctc ctcttctctg 60  
 ttgctgggga tcccaggact agaaacactt cacatctgga tcggctttcc cttctgtgct 120  
 gtgtacatga tcgcactcat agggaaactt actattctac ttgtgatcaa gactgacagc 180  
 agcctacacc agcccatggt ctacttctctg gccatgttgg ccaccactga tgtgggtctc 240  
 tcaacagcta ccatccctaa gatgcttggga atcttctgga tcaacctcag agggatcatc 300  
 tttgaagcct gcctcaccca gatgtttttt atccacaact tcacacttat ggagtcagca 360  
 gtcttctgtg caatggctta tgacagctat gtggccatct gcaatccact ccaatatagc 420  
 gccatcctca ccaacaaggt tgtttctgtg attggtcttg gtgtgtttgt gagggcttta 480  
 attttcgtca ttccctctat acttcttata ttgcggttgc cttctgtggt gaatcatgta 540  
 attccccaca cctactgtga gcacatgggt cttgtctcatc tatcttgtgc cagcatcaaa 600  
 atcaatatta tttatgggtt atgtgccatt tgtaatctag tgtttgacat cacagtcatt 660  
 gccctctctt atgtgcatat tctttgtgct gttttccgtc ttctactca tgaagcccga 720  
 ctcaagtccc tcagcacatg tggttcacat gtgtgtgtaa tccttgccct ctatacacca 780  
 gccctctttt cttttatgac tcatcgcttt ggccgaaatg tgccccgcta tatccatata 840  
 ctcttagcca atctctatgt tgtggtgcca ccaatgctca atcctgtcat atatggagtc 900  
 agaaccaagc agatctataa atgtgtgaag aaaatattat tgcaggaaca aggaatggaa 960  
 aaggaagagt acctaataca tacgagggtc tgaatgcaat tttatgaaat tt 1012

<210> 24  
 <211> 325  
 <212> PRT  
 <213> Homo sapiens

<400> 24  
 Met Phe Leu Pro Asn Asp Thr Gln Phe His Pro Ser Ser Phe Leu Leu  
 1 5 10 15

Leu Gly Ile Pro Gly Leu Glu Thr Leu His Ile Trp Ile Gly Phe Pro  
 20 25 30

Phe Cys Ala Val Tyr Met Ile Ala Leu Ile Gly Asn Phe Thr Ile Leu  
 35 40 45

Leu Val Ile Lys Thr Asp Ser Ser Leu His Gln Pro Met Phe Tyr Phe  
 50 55 60

Leu Ala Met Leu Ala Thr Thr Asp Val Gly Leu Ser Thr Ala Thr Ile  
 65 70 75 80

Pro Lys Met Leu Gly Ile Phe Trp Ile Asn Leu Arg Gly Ile Ile Phe  
 85 90 95

Glu Ala Cys Leu Thr Gln Met Phe Phe Ile His Asn Phe Thr Leu Met  
 100 105 110

Glu Ser Ala Val Leu Val Ala Met Ala Tyr Asp Ser Tyr Val Ala Ile  
 115 120 125  
 Cys Asn Pro Leu Gln Tyr Ser Ala Ile Leu Thr Asn Lys Val Val Ser  
 130 135 140  
 Val Ile Gly Leu Gly Val Phe Val Arg Ala Leu Ile Phe Val Ile Pro  
 145 150 155 160  
 Ser Ile Leu Leu Ile Leu Arg Leu Pro Phe Cys Gly Asn His Val Ile  
 165 170 175  
 Pro His Thr Tyr Cys Glu His Met Gly Leu Ala His Leu Ser Cys Ala  
 180 185 190  
 Ser Ile Lys Ile Asn Ile Ile Tyr Gly Leu Cys Ala Ile Cys Asn Leu  
 195 200 205  
 Val Phe Asp Ile Thr Val Ile Ala Leu Ser Tyr Val His Ile Leu Cys  
 210 215 220  
 Ala Val Phe Arg Leu Pro Thr His Glu Ala Arg Leu Lys Ser Leu Ser  
 225 230 235 240  
 Thr Cys Gly Ser His Val Cys Val Ile Leu Ala Phe Tyr Thr Pro Ala  
 245 250 255  
 Leu Phe Ser Phe Met Thr His Arg Phe Gly Arg Asn Val Pro Arg Tyr  
 260 265 270  
 Ile His Ile Leu Leu Ala Asn Leu Tyr Val Val Val Pro Pro Met Leu  
 275 280 285  
 Asn Pro Val Ile Tyr Gly Val Arg Thr Lys Gln Ile Tyr Lys Cys Val  
 290 295 300  
 Lys Lys Ile Leu Leu Gln Glu Gln Gly Met Glu Lys Glu Glu Tyr Leu  
 305 310 315 320  
 Ile His Thr Arg Phe  
 325

<210> 25  
 <211> 968  
 <212> DNA  
 <213> Homo sapiens

<400> 25  
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 gcctccctgg tttagaagag gctcagttct gggtggcctt cccattgtgc tccctctacc 120  
 ttattgctgt gctaggtaac ttgacaatca tctacattgt gcggactgag cacagcctgc 180  
 atgagcccat gtatatattt ctttgcattg tttcaggcat tgacatcctc atctccacct 240  
 catccatgcc caaaatgctg gccatcttct gggttcaattc cactaccatc cagtttgatg 300  
 cttgtctgct acagatgttt gccatccact ccttatctgg catggaatcc acagtgtctg 360  
 tggccatggc ttttgaccgc tatgtggcca tctgtcacc actgcgccat gccacagtac 420  
 ttacgttgcc tcgtgtcacc aaaattgggtg tggtgtctgt ggtgcggggg gctgcactga 480  
 tggcaccctt cctgtcttc atcaagcagc tgcccttctg ccgctccaat atcctttccc 540  
 attcctactg cctacaccaa gatgtcatga agctggcctg tgatgatatc cgggtcaatg 600  
 tcgtctatgg ccttatcgtc atcatctcgc ccattggcct ggactcactt ctcctctcct 660  
 tctcatatct gcttattctt aagactgtgt tgggcttgac acgtgaagcc caggccaagg 720  
 catttggcac ttgcgtctct catgtgtgtg ctgtgttcat attctatgta cctttcattg 780  
 gattgtccat ggtgcatcgc tttagcaagc ggcgtgactc tccgctgccc gtcctcttgg 840

ccaatatcta tctgctgggt cctcctgtgc tcaacccaat tgtctatgga gtgaagacaa 900  
 aggagattcg acagcgcatc cttcgacttt tccatgtggc cacacacgct tcagagccct 960  
 aggtgtca 968

<210> 26  
 <211> 318  
 <212> PRT  
 <213> Homo sapiens

<400> 26  
 Met Met Val Asp Pro Asn Gly Asn Glu Ser Ser Ala Thr Tyr Phe Ile  
 1 5 10 15  
 Leu Ile Gly Leu Pro Gly Leu Glu Glu Ala Gln Phe Trp Leu Ala Phe  
 20 25 30  
 Pro Leu Cys Ser Leu Tyr Leu Ile Ala Val Leu Gly Asn Leu Thr Ile  
 35 40 45  
 Ile Tyr Ile Val Arg Thr Glu His Ser Leu His Glu Pro Met Tyr Ile  
 50 55 60  
 Phe Leu Cys Met Leu Ser Gly Ile Asp Ile Leu Ile Ser Thr Ser Ser  
 65 70 75 80  
 Met Pro Lys Met Leu Ala Ile Phe Trp Phe Asn Ser Thr Thr Ile Gln  
 85 90 95  
 Phe Asp Ala Cys Leu Leu Gln Met Phe Ala Ile His Ser Leu Ser Gly  
 100 105 110  
 Met Glu Ser Thr Val Leu Leu Ala Met Ala Phe Asp Arg Tyr Val Ala  
 115 120 125  
 Ile Cys His Pro Leu Arg His Ala Thr Val Leu Thr Leu Pro Arg Val  
 130 135 140  
 Thr Lys Ile Gly Val Ala Ala Val Val Arg Gly Ala Ala Leu Met Ala  
 145 150 155 160  
 Pro Leu Pro Val Phe Ile Lys Gln Leu Pro Phe Cys Arg Ser Asn Ile  
 165 170 175  
 Leu Ser His Ser Tyr Cys Leu His Gln Asp Val Met Lys Leu Ala Cys  
 180 185 190  
 Asp Asp Ile Arg Val Asn Val Val Tyr Gly Leu Ile Val Ile Ile Ser  
 195 200 205  
 Ala Ile Gly Leu Asp Ser Leu Leu Ile Ser Phe Ser Tyr Leu Leu Ile  
 210 215 220  
 Leu Lys Thr Val Leu Gly Leu Thr Arg Glu Ala Gln Ala Lys Ala Phe  
 225 230 235 240  
 Gly Thr Cys Val Ser His Val Cys Ala Val Phe Ile Phe Tyr Val Pro  
 245 250 255  
 Phe Ile Gly Leu Ser Met Val His Arg Phe Ser Lys Arg Arg Asp Ser  
 260 265 270  
 Pro Leu Pro Val Ile Leu Ala Asn Ile Tyr Leu Leu Val Pro Pro Val

275

280

285

Leu Asn Pro Ile Val Tyr Gly Val Lys Thr Lys Glu Ile Arg Gln Arg  
 290 295 300

Ile Leu Arg Leu Phe His Val Ala Thr His Ala Ser Glu Pro  
 305 310 315

<210> 27  
 <211> 969  
 <212> DNA  
 <213> Homo sapiens

<400> 27  
 ttcttcatga tgggtggatcc caatggcaat gaatccagt ctacatactt catcctaata 60  
 ggccctccctg gtttagaaga ggctcagttc tggttggcct tcccattgtg ctccctctac 120  
 cttattgctg tgctaggttaa cttgacaatc atctacattg tgcggactga gcacagcctg 180  
 catgagccca tgtatatatt tctttgcatg ctttcaggca ttgacatcct catctccacc 240  
 tcatccatgc ccaaaatgct ggccatcttc tggttcaatt ccactaccat ccagtttgat 300  
 gcttgtctgc tacagatggt tgccatccac tccttatctg gcatggaatc cacagtgtg 360  
 ctggccatgg cttttgaccg ctatgtggcc atctgtcacc cactgcgcca tgccacagta 420  
 cttacgttgc ctggtgtcac caaaattggg gtggctgtg tgggtgcgggg ggctgcactg 480  
 atggcacccc ttctgtctt catcaagcag ctgcccttct gccgtccaa tatcctttcc 540  
 cattcctact gccacacca agatgtcatg aagctggcct gtgatgatat ccgggtcaat 600  
 gtcgtctatg gccttatcgt catcatctcc gccattggcc tggactcact tctcatctcc 660  
 ttctcatatc tgcttattct taagactgtg ttgggcttga cacgtgaagc ccaggccaag 720  
 gcatttggca cttgcgtctc tcatgtgtgt gctgtgttca tattctatgt acctttcatt 780  
 ggattgtcca tgggtgcatcg ctttagcaag cggcgtgact ctccactgcc cgtcatcttg 840  
 gccaatatct atctgtctgt tcctcctgtg ctcaacccaa ttgtctatgg agtgaagaca 900  
 aaggagattc gacagcgcac ccttcgactt ttccatgtgg ccacacacgc ttcagagccc 960  
 taggtgtca 969

<210> 28  
 <211> 318  
 <212> PRT  
 <213> Homo sapiens

<400> 28  
 Met Met Val Asp Pro Asn Gly Asn Glu Ser Ser Ala Thr Tyr Phe Ile  
 1 5 10 15  
 Leu Ile Gly Leu Pro Gly Leu Glu Glu Ala Gln Phe Trp Leu Ala Phe  
 20 25 30  
 Pro Leu Cys Ser Leu Tyr Leu Ile Ala Val Leu Gly Asn Leu Thr Ile  
 35 40 45  
 Ile Tyr Ile Val Arg Thr Glu His Ser Leu His Glu Pro Met Tyr Ile  
 50 55 60  
 Phe Leu Cys Met Leu Ser Gly Ile Asp Ile Leu Ile Ser Thr Ser Ser  
 65 70 75 80  
 Met Pro Lys Met Leu Ala Ile Phe Trp Phe Asn Ser Thr Thr Ile Gln  
 85 90 95  
 Phe Asp Ala Cys Leu Leu Gln Met Phe Ala Ile His Ser Leu Ser Gly  
 100 105 110  
 Met Glu Ser Thr Val Leu Leu Ala Met Ala Phe Asp Arg Tyr Val Ala  
 115 120 125

Ile Cys His Pro Leu Arg His Ala Thr Val Leu Thr Leu Pro Arg Val  
130 135 140

Thr Lys Ile Gly Val Ala Ala Val Val Arg Gly Ala Ala Leu Met Ala  
145 150 155 160

Pro Leu Pro Val Phe Ile Lys Gln Leu Pro Phe Cys Arg Ser Asn Ile  
165 170 175

Leu Ser His Ser Tyr Cys Pro His Gln Asp Val Met Lys Leu Ala Cys  
180 185 190

Asp Asp Ile Arg Val Asn Val Val Tyr Gly Leu Ile Val Ile Ile Ser  
195 200 205

Ala Ile Gly Leu Asp Ser Leu Leu Ile Ser Phe Ser Tyr Leu Leu Ile  
210 215 220

Leu Lys Thr Val Leu Gly Leu Thr Arg Glu Ala Gln Ala Lys Ala Phe  
225 230 235 240

Gly Thr Cys Val Ser His Val Cys Ala Val Phe Ile Phe Tyr Val Pro  
245 250 255

Phe Ile Gly Leu Ser Met Val His Arg Phe Ser Lys Arg Arg Asp Ser  
260 265 270

Pro Leu Pro Val Ile Leu Ala Asn Ile Tyr Leu Leu Val Pro Pro Val  
275 280 285

Leu Asn Pro Ile Val Tyr Gly Val Lys Thr Lys Glu Ile Arg Gln Arg  
290 295 300

Ile Leu Arg Leu Phe His Val Ala Thr His Ala Ser Glu Pro  
305 310 315

<210> 29  
<211> 968  
<212> DNA  
<213> Homo sapiens

<400> 29  
ttcttcatga tgggtggatcc caatggcaat gaatccagtg ctacatactt catcctaata 60  
ggcctccctg gtttagaaga ggctcagttc tgggtggcct tcccattgtg ctccctctac 120  
cttattgctg tgctaggtaa cttgacaatc atctacattg tgcggactga gcacagcctg 180  
catgagccca tgtatatatt tctttgcatg ctttcaggca ttgacatcct catctccacc 240  
tcatccatgc ccaaaatgct ggccatcttc tggttcaatt ccaactaccat ccagtttgat 300  
gcttgctctgc tacagatggt tgccatccac tccttatctg gcatggaatc cacagtgtctg 360  
ctggccatgg cttttgaccg ctatgtggcc atctgtcacc cactgcgcca tgccacagta 420  
cttacgttgc ctctgtgtcac caaaattgggt gtggctgctg tgggtgcgggg ggtgcactg 480  
atggcacccc ttctgtgtct catcaagcag ctgcccttct gccgtccaa tctcctttcc 540  
cattcctact gccacacca agatgtcatg aagctggcct gtgatgatat ccgggtcaat 600  
gtcgtctatg gccttatcgt catcatctcc gccattggcc tggactcact tctcatctcc 660  
ttctcatatc tgcttattct taagactgtg ttgggcttga cacgtgaagc ccaggccaag 720  
gcatttggca cttgcgtctc tcatgtgtgt gctgtgttca tattctatgt acctttcatt 780  
ggattgtcca tgggtgcatcg ctttagcaag cggcgtgaact ctccactgcc cgtcatcttg 840  
gccaatatct atctgctggg tcctcctgtg ctcaacccaa ttgtctatgg agtgaagaca 900  
aaggagattc gacagcgcac ccttcgactt ttccatgtgg ccacacacgc ttcagagccc 960  
taggtgta 968

<210> 30  
 <211> 318  
 <212> PRT  
 <213> Homo sapiens

<400> 30

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Met | Val | Asp | Pro | Asn | Gly | Asn | Glu | Ser | Ser | Ala | Thr | Tyr | Phe | Ile | 1   | 5   | 10  | 15  |
| Leu | Ile | Gly | Leu | Pro | Gly | Leu | Glu | Glu | Ala | Gln | Phe | Trp | Leu | Ala | Phe | 20  | 25  | 30  |     |
| Pro | Leu | Cys | Ser | Leu | Tyr | Leu | Ile | Ala | Val | Leu | Gly | Asn | Leu | Thr | Ile | 35  | 40  | 45  |     |
| Ile | Tyr | Ile | Val | Arg | Thr | Glu | His | Ser | Leu | His | Glu | Pro | Met | Tyr | Ile | 50  | 55  | 60  |     |
| Phe | Leu | Cys | Met | Leu | Ser | Gly | Ile | Asp | Ile | Leu | Ile | Ser | Thr | Ser | Ser | 65  | 70  | 75  | 80  |
| Met | Pro | Lys | Met | Leu | Ala | Ile | Phe | Trp | Phe | Asn | Ser | Thr | Thr | Ile | Gln | 85  | 90  | 95  |     |
| Phe | Asp | Ala | Cys | Leu | Leu | Gln | Met | Phe | Ala | Ile | His | Ser | Leu | Ser | Gly | 100 | 105 | 110 |     |
| Met | Glu | Ser | Thr | Val | Leu | Leu | Ala | Met | Ala | Phe | Asp | Arg | Tyr | Val | Ala | 115 | 120 | 125 |     |
| Ile | Cys | His | Pro | Leu | Arg | His | Ala | Thr | Val | Leu | Thr | Leu | Pro | Arg | Val | 130 | 135 | 140 |     |
| Thr | Lys | Ile | Gly | Val | Ala | Ala | Val | Val | Arg | Gly | Ala | Ala | Leu | Met | Ala | 145 | 150 | 155 | 160 |
| Pro | Leu | Pro | Val | Phe | Ile | Lys | Gln | Leu | Pro | Phe | Cys | Arg | Ser | Asn | Ile | 165 | 170 | 175 |     |
| Leu | Ser | His | Ser | Tyr | Cys | Pro | His | Gln | Asp | Val | Met | Lys | Leu | Ala | Cys | 180 | 185 | 190 |     |
| Asp | Asp | Ile | Arg | Val | Asn | Val | Val | Tyr | Gly | Leu | Ile | Val | Ile | Ile | Ser | 195 | 200 | 205 |     |
| Ala | Ile | Gly | Leu | Asp | Ser | Leu | Leu | Ile | Ser | Phe | Ser | Tyr | Leu | Leu | Ile | 210 | 215 | 220 |     |
| Leu | Lys | Thr | Val | Leu | Gly | Leu | Thr | Arg | Glu | Ala | Gln | Ala | Lys | Ala | Phe | 225 | 230 | 235 | 240 |
| Gly | Thr | Cys | Val | Ser | His | Val | Cys | Ala | Val | Phe | Ile | Phe | Tyr | Val | Pro | 245 | 250 | 255 |     |
| Phe | Ile | Gly | Leu | Ser | Met | Val | His | Arg | Phe | Ser | Lys | Arg | Arg | Asp | Ser | 260 | 265 | 270 |     |
| Pro | Leu | Pro | Val | Ile | Leu | Ala | Asn | Ile | Tyr | Leu | Leu | Val | Pro | Pro | Val | 275 | 280 | 285 |     |
| Leu | Asn | Pro | Ile | Val | Tyr | Gly | Val | Lys | Thr | Lys | Glu | Ile | Arg | Gln | Arg | 290 | 295 | 300 |     |

Ile Leu Arg Leu Phe His Val Ala Thr His Ala Ser Glu Pro  
 305 310 315

<210> 31  
 <211> 980  
 <212> DNA  
 <213> Homo sapiens

<400> 31  
 tgatgctggg tccagcttac aaccacacaa tggaaacccc tgcctccttc ctccctgttg 60  
 gtatcccagg actgcaatct tcacatcttt ggctggctat ctactgagt gccatgtaca 120  
 tcacagccct gttaggaaac accctcatcg tgactgcaat ctggatggat tccactcggc 180  
 atgagcccat gtattgcttt ctgtgtgttc tggctgctgt ggacattgtt atggcctcct 240  
 ccgtgggtacc caagatgggt agcatcttct gctcgggaga cagctccatc agcttttagt 300  
 cttgtttcac tcagatgttt tttgtccact tagccacagc tgtggagacg gggctgctgc 360  
 tgaccatggc ttttgaccgc tatgtagcca tctgcaagcc tctacactac aagagaattc 420  
 tcacgcctca agtgatgctg ggaatgagta tggccgtcac catcagagct gtcacattca 480  
 tgactccact gagttggatg atgaatcatc tacctttctg tggctccaat gtggttgctc 540  
 actcctactg taagcacata gctttggcca ggtagcatg tgctgacccc gtgcccagca 600  
 gtctctacag tctgattggt tcctctctta tgggtgggctc tgatgtggcc ttcattgctg 660  
 cctcctatat cttaattctc agggcagtat ttgatctctc ctcaaagact gctcagttga 720  
 aagcattaag cacatgtggc tcccatgtgg gggttatggc tttgtactat ctacctggga 780  
 tggcatccat ctatgcggcc tggttggggc aggatatagt gcccttgac acccaagtgc 840  
 tgctagctga cctgtacgtg atcatcccag ccactttaaa tcccatcatc tatggcatga 900  
 ggaccaaaca attgctggag ggaatatgga gttatctgat gcacttcctc tttgaccact 960  
 ccaacctggg ttcatgaaca 980

<210> 32  
 <211> 324  
 <212> PRT  
 <213> Homo sapiens

<400> 32  
 Met Leu Gly Pro Ala Tyr Asn His Thr Met Glu Thr Pro Ala Ser Phe  
 1 5 10 15  
 Leu Leu Val Gly Ile Pro Gly Leu Gln Ser Ser His Leu Trp Leu Ala  
 20 25 30  
 Ile Ser Leu Ser Ala Met Tyr Ile Thr Ala Leu Leu Gly Asn Thr Leu  
 35 40 45  
 Ile Val Thr Ala Ile Trp Met Asp Ser Thr Arg His Glu Pro Met Tyr  
 50 55 60  
 Cys Phe Leu Cys Val Leu Ala Ala Val Asp Ile Val Met Ala Ser Ser  
 65 70 75 80  
 Val Val Pro Lys Met Val Ser Ile Phe Cys Ser Gly Asp Ser Ser Ile  
 85 90 95  
 Ser Phe Ser Ala Cys Phe Thr Gln Met Phe Phe Val His Leu Ala Thr  
 100 105 110  
 Ala Val Glu Thr Gly Leu Leu Leu Thr Met Ala Phe Asp Arg Tyr Val  
 115 120 125  
 Ala Ile Cys Lys Pro Leu His Tyr Lys Arg Ile Leu Thr Pro Gln Val  
 130 135 140  
 Met Leu Gly Met Ser Met Ala Val Thr Ile Arg Ala Val Thr Phe Met



|   |     |     |     |
|---|-----|-----|-----|
| 145   | 150 | 155 | 160 |
| Thr Pro Leu Ser Trp Met Met Asn His Leu Pro Phe Cys Gly Ser Asn |     |     |     |
|   | 165 | 170 | 175 |
| Val Val Val His Ser Tyr Cys Lys His Ile Ala Leu Ala Arg Leu Ala |     |     |     |
|   | 180 | 185 | 190 |
| Cys Ala Asp Pro Val Pro Ser Ser Leu Tyr Ser Leu Ile Gly Ser Ser |     |     |     |
|   | 195 | 200 | 205 |
| Leu Met Val Gly Ser Asp Val Ala Phe Ile Ala Ala Ser Tyr Ile Leu |     |     |     |
|   | 210 | 215 | 220 |
| Ile Leu Arg Ala Val Phe Asp Leu Ser Ser Lys Thr Ala Gln Leu Lys |     |     |     |
|   | 225 | 230 | 235 |
| Ala Leu Ser Thr Cys Gly Ser His Val Gly Val Met Ala Leu Tyr Tyr |     |     |     |
|   | 245 | 250 | 255 |
| Leu Pro Gly Met Ala Ser Ile Tyr Ala Ala Trp Leu Gly Gln Asp Ile |     |     |     |
|   | 260 | 265 | 270 |
| Val Pro Leu His Thr Gln Val Leu Leu Ala Asp Leu Tyr Val Ile Ile |     |     |     |
|   | 275 | 280 | 285 |
| Pro Ala Thr Leu Asn Pro Ile Ile Tyr Gly Met Arg Thr Lys Gln Leu |     |     |     |
|   | 290 | 295 | 300 |
| Leu Glu Gly Ile Trp Ser Tyr Leu Met His Phe Leu Phe Asp His Ser |     |     |     |
|   | 305 | 310 | 315 |
|   |     |     | 320 |
| Asn Leu Gly Ser   |     |     |     |

<210> 33  
 <211> 985  
 <212> DNA  
 <213> Homo sapiens

<400> 33  
 tgtgatgctg ggtccagctt ataaccacac aatggaaacc cctgcctcct tcctccttgt 60  
 gggatatccca ggactgcaat cttcacatct ttggctggct atctcaactga gtgccatgta 120  
 catcatagcc ctgttaggaa acaccatcat cgtgactgca atctggatgg attccactcg 180  
 gcatgagccc atgtattgct ttctgtgtgt tctggctgct gtggacattg ttatggcctc 240  
 ctcggtggta cccaagatgg tgagcatctt ctgctcagga gacagctcaa tcagcttttag 300  
 tgcttgtttc actcagatgt tttttgtcca cttagccaca gctgtggaga cggggctgct 360  
 gctgaccatg gcttttgacc gctatgtagc catctgcaag cctctacact acaagagaat 420  
 tctcacgcct caagtgatgc tgggaatgag tatggccatc accatcagag ctatcatagc 480  
 cataactcca ctgagttgga tggtagtca tctacctttc tgtggctcca atgtggttgt 540  
 ccactcctac tgtgagcaca tagctttggc caggtagca tgtgctgacc ccgtgcccag 600  
 cagtctctac agtctgattg gttcctctct tatgggtggc tctgatgtgg ccttcattgc 660  
 tgctcctat atcttaattc tcaaggcagt atttggctct tcctcaaaga ctgctcagtt 720  
 gaaagcatta agcacatgtg gctcccatgt gggggttatg gctttgtact atctacctgg 780  
 gatggcatcc atctatgcgg cctgggttggg gcaggatgta gtgcccttgc acaccaagt 840  
 cctgctagct gacctgtacg tgatcatccc agccacctta aatcccatca tctatggcat 900  
 gaggacaaa caactgcggg agagaatatg gagttatctg atgcatgtcc tctttgacca 960  
 ttccaacctg ggttcatgaa caca 985

<210> 34  
 <211> 324

<212> PRT

<213> Homo sapiens

<400> 34

Met Leu Gly Pro Ala Tyr Asn His Thr Met Glu Thr Pro Ala Ser Phe  
1 5 10 15  
Leu Leu Val Gly Ile Pro Gly Leu Gln Ser Ser His Leu Trp Leu Ala  
20 25 30  
Ile Ser Leu Ser Ala Met Tyr Ile Ile Ala Leu Leu Gly Asn Thr Ile  
35 40 45  
Ile Val Thr Ala Ile Trp Met Asp Ser Thr Arg His Glu Pro Met Tyr  
50 55 60  
Cys Phe Leu Cys Val Leu Ala Ala Val Asp Ile Val Met Ala Ser Ser  
65 70 75 80  
Val Val Pro Lys Met Val Ser Ile Phe Cys Ser Gly Asp Ser Ser Ile  
85 90 95  
Ser Phe Ser Ala Cys Phe Thr Gln Met Phe Phe Val His Leu Ala Thr  
100 105 110  
Ala Val Glu Thr Gly Leu Leu Leu Thr Met Ala Phe Asp Arg Tyr Val  
115 120 125  
Ala Ile Cys Lys Pro Leu His Tyr Lys Arg Ile Leu Thr Pro Gln Val  
130 135 140  
Met Leu Gly Met Ser Met Ala Ile Thr Ile Arg Ala Ile Ile Ala Ile  
145 150 155 160  
Thr Pro Leu Ser Trp Met Val Ser His Leu Pro Phe Cys Gly Ser Asn  
165 170 175  
Val Val Val His Ser Tyr Cys Glu His Ile Ala Leu Ala Arg Leu Ala  
180 185 190  
Cys Ala Asp Pro Val Pro Ser Ser Leu Tyr Ser Leu Ile Gly Ser Ser  
195 200 205  
Leu Met Val Gly Ser Asp Val Ala Phe Ile Ala Ala Ser Tyr Ile Leu  
210 215 220  
Ile Leu Lys Ala Val Phe Gly Leu Ser Ser Lys Thr Ala Gln Leu Lys  
225 230 235 240  
Ala Leu Ser Thr Cys Gly Ser His Val Gly Val Met Ala Leu Tyr Tyr  
245 250 255  
Leu Pro Gly Met Ala Ser Ile Tyr Ala Ala Trp Leu Gly Gln Asp Val  
260 265 270  
Val Pro Leu His Thr Gln Val Leu Leu Ala Asp Leu Tyr Val Ile Ile  
275 280 285  
Pro Ala Thr Leu Asn Pro Ile Ile Tyr Gly Met Arg Thr Lys Gln Leu  
290 295 300  
Arg Glu Arg Ile Trp Ser Tyr Leu Met His Val Leu Phe Asp His Ser  
305 310 315 320

Asn Leu Gly Ser

<210> 35  
<211> 985  
<212> DNA  
<213> Homo sapiens

<400> 35  
tgtgatgctg ggtccagctt ataaccacac aatggaaacc cctgcctcct tcctccttgt 60  
gggtatccca ggactgcaat cttcacatct ttggctggct atctcactga gtgccatgta 120  
catcacagcc ctgttaggaa acaccatcat cgtgactgca atctggatgg attccactcg 180  
gcatgagccc atgtattgct ttctgtgtgt tctggctgct gtggacattg ttatggcctc 240  
ctcggtggta cccaagatgg tgagcatctt ctgctcagga gacagctcaa tcagctttag 300  
tgcttgtttc actcagatgt tttttgtcca cttagccaca gctgtggaga cggggctgct 360  
gctgaccatg gcttttgacc gctatgtagc catctgcaag cctctacact acaagagaat 420  
tctcacgcct caagtgatgc tgggaatgag tatggccatc accatcagag ctatcatagc 480  
cataactcca ctgagttgga tggtagtca tctacctttc tgtggctcca atgtggttgt 540  
ccactcctac tgtgagcaca tagctttggc caggttagca tgtgctgacc ccgtgccag 600  
cagtctctac agtctgattg gttcctctct tatgggtggc tctgatgtgg ccttcattgc 660  
tgccctctat atcttaattc tcagggcagt atttgatctc tcctcaaaga ctgctcagtt 720  
gaaagcatta agcacatgtg gctcccattg gggggttatg gctttgtact atctacctgg 780  
gatggcatcc atctatgcgg cctgggtggg gcaggatata gtgcccttgc acaccaagt 840  
gctgttagct gacctgtacg tgatcatccc agccacttta aatcccatca tctatggcat 900  
gaggacaaa caattgctgg agggaatatg gagttatctg atgcacttcc tctttgacca 960  
ctccaacctg ggttcatgaa cacia 985

<210> 36  
<211> 324  
<212> PRT  
<213> Homo sapiens

<400> 36  
Met Leu Gly Pro Ala Tyr Asn His Thr Met Glu Thr Pro Ala Ser Phe  
1 5 10 15  
Leu Leu Val Gly Ile Pro Gly Leu Gln Ser Ser His Leu Trp Leu Ala  
20 25 30  
Ile Ser Leu Ser Ala Met Tyr Ile Thr Ala Leu Leu Gly Asn Thr Ile  
35 40 45  
Ile Val Thr Ala Ile Trp Met Asp Ser Thr Arg His Glu Pro Met Tyr  
50 55 60  
Cys Phe Leu Cys Val Leu Ala Ala Val Asp Ile Val Met Ala Ser Ser  
65 70 75 80  
Val Val Pro Lys Met Val Ser Ile Phe Cys Ser Gly Asp Ser Ser Ile  
85 90 95  
Ser Phe Ser Ala Cys Phe Thr Gln Met Phe Phe Val His Leu Ala Thr  
100 105 110  
Ala Val Glu Thr Gly Leu Leu Leu Thr Met Ala Phe Asp Arg Tyr Val  
115 120 125  
Ala Ile Cys Lys Pro Leu His Tyr Lys Arg Ile Leu Thr Pro Gln Val  
130 135 140

Met Leu Gly Met Ser Met Ala Ile Thr Ile Arg Ala Ile Ile Ala Ile  
145 150 155 160

Thr Pro Leu Ser Trp Met Val Ser His Leu Pro Phe Cys Gly Ser Asn  
165 170 175

Val Val Val His Ser Tyr Cys Glu His Ile Ala Leu Ala Arg Leu Ala  
180 185 190

Cys Ala Asp Pro Val Pro Ser Ser Leu Tyr Ser Leu Ile Gly Ser Ser  
195 200 205

Leu Met Val Gly Ser Asp Val Ala Phe Ile Ala Ala Ser Tyr Ile Leu  
210 215 220

Ile Leu Arg Ala Val Phe Asp Leu Ser Ser Lys Thr Ala Gln Leu Lys  
225 230 235 240

Ala Leu Ser Thr Cys Gly Ser His Val Gly Val Met Ala Leu Tyr Tyr  
245 250 255

Leu Pro Gly Met Ala Ser Ile Tyr Ala Ala Trp Leu Gly Gln Asp Ile  
260 265 270

Val Pro Leu His Thr Gln Val Leu Leu Ala Asp Leu Tyr Val Ile Ile  
275 280 285

Pro Ala Thr Leu Asn Pro Ile Ile Tyr Gly Met Arg Thr Lys Gln Leu  
290 295 300

Leu Glu Gly Ile Trp Ser Tyr Leu Met His Phe Leu Phe Asp His Ser  
305 310 315 320

Asn Leu Gly Ser

<210> 37  
<211> 960  
<212> DNA  
<213> Homo sapiens

<400> 37  
gccatgctca cttttcataa tgtctgctca gtaccagct cttcttggt cactggcattc 60  
ccagggctgg agtccctaca cgtctggctc tccatcccct ttggctccat gtacctggtg 120  
gctgtggtgg ggaatgtgac catcctggct gtggtaaaga tagaacgcag cctgcaccag 180  
cccatgtact ttttcttggt catgttggct gccattgacc tggttctgtc tacttccact 240  
ataccctaac ttctgggaat cttctgggtc ggtgcttggt acattggcct ggacgcctgc 300  
ttggggccaaa tgttccttat ccactgcttt gccactggtg agtcaggcat cttccttgcc 360  
atggcttttg atcgctacgt ggccatctgc aaccactac gtcatacat ggtgctcact 420  
tatacagtgg tgggtcggtt ggggcttggt tctctcctcc ggggtgttct ctacattgga 480  
cctctgcctc tgatgatccg cctgcggctg cccctttata aaacccatgt tatctccac 540  
tcctactgtg agcacatggc ttagattgcc ttgacatgtg gcgacagcag ggtcaataat 600  
gtctatgggc tgagcatcgg ctttctggtg ttgactcctg actcagtggc tattgctgca 660  
tcctatgtga tgattttcag ggccgtgatg ggggttagcca ctctgaggc taggcttaaa 720  
accctgggga catgcgcttc tcacctctgt gccatcctga tcttttatgt tccattgct 780  
gtttcttccc tgattcaccg atttggtcag tgtgtgctc ctccagtcca cactctgctg 840  
gccaacttct atctcctcat tctccaatc ctcaatccca ttgtctatgc tgttcgcacc 900  
aagcagatcc gagagagcct tctccaaata ccaaggatag aaatgaagat tagatgatta 960

<210> 38  
<211> 317

<212> PRT

<213> Homo sapiens

<400> 38

Met Leu Thr Phe His Asn Val Cys Ser Val Pro Ser Ser Phe Trp Leu  
1 5 10 15  
Thr Gly Ile Pro Gly Leu Glu Ser Leu His Val Trp Leu Ser Ile Pro  
20 25 30  
Phe Gly Ser Met Tyr Leu Val Ala Val Val Gly Asn Val Thr Ile Leu  
35 40 45  
Ala Val Val Lys Ile Glu Arg Ser Leu His Gln Pro Met Tyr Phe Phe  
50 55 60  
Leu Cys Met Leu Ala Ala Ile Asp Leu Val Leu Ser Thr Ser Thr Ile  
65 70 75 80  
Pro Lys Leu Leu Gly Ile Phe Trp Phe Gly Ala Cys Asp Ile Gly Leu  
85 90 95  
Asp Ala Cys Leu Gly Gln Met Phe Leu Ile His Cys Phe Ala Thr Val  
100 105 110  
Glu Ser Gly Ile Phe Leu Ala Met Ala Phe Asp Arg Tyr Val Ala Ile  
115 120 125  
Cys Asn Pro Leu Arg His Ser Met Val Leu Thr Tyr Thr Val Val Gly  
130 135 140  
Arg Leu Gly Leu Val Ser Leu Leu Arg Gly Val Leu Tyr Ile Gly Pro  
145 150 155 160  
Leu Pro Leu Met Ile Arg Leu Arg Leu Pro Leu Tyr Lys Thr His Val  
165 170 175  
Ile Ser His Ser Tyr Cys Glu His Met Ala Val Val Ala Leu Thr Cys  
180 185 190  
Gly Asp Ser Arg Val Asn Asn Val Tyr Gly Leu Ser Ile Gly Phe Leu  
195 200 205  
Val Leu Ile Leu Asp Ser Val Ala Ile Ala Ala Ser Tyr Val Met Ile  
210 215 220  
Phe Arg Ala Val Met Gly Leu Ala Thr Pro Glu Ala Arg Leu Lys Thr  
225 230 235 240  
Leu Gly Thr Cys Ala Ser His Leu Cys Ala Ile Leu Ile Phe Tyr Val  
245 250 255  
Pro Ile Ala Val Ser Ser Leu Ile His Arg Phe Gly Gln Cys Val Pro  
260 265 270  
Pro Pro Val His Thr Leu Leu Ala Asn Phe Tyr Leu Leu Ile Pro Pro  
275 280 285  
Ile Leu Asn Pro Ile Val Tyr Ala Val Arg Thr Lys Gln Ile Arg Glu  
290 295 300  
Ser Leu Leu Gln Ile Pro Arg Ile Glu Met Lys Ile Arg  
305 310 315

<210> 39  
 <211> 997  
 <212> DNA  
 <213> Homo sapiens

<400> 39  
 agccatgctc acttttcata atgtctgctc agtaccacgc tccttctggc tcaactggcat 60  
 cccagggctg gagtccctac acgtctggct ctccatcccc ttgggtcca tgtacctggt 120  
 ggctgtgggtg gggaatgtga ccatcctggc tgtggtaaag atagaacgca gcctgcacca 180  
 gcccattgtac tttttcttgt gcatgttggc tgccattgac ctggttctgt ctacttccac 240  
 tatacccaaa cttctgggaa tcttctgggt cgggtgctgt gacattggcc tggatgcctg 300  
 cttggggcaa atgttcctta tccactgctt tgccactggt gagtcaggca tcttccttgc 360  
 catggctttt gatcgctatg tggccatctg caaccacta cgtcatagca tgggtgctac 420  
 ttatacagtg gtgggtcgtt tggggcttgt ttctctctc cgggggtgtt tctacattgg 480  
 acctctgctt ctgatgatcc gcctgctggc gcccctttat aaaacccatg ttatctccca 540  
 ctccactgtg gagcacatgg ctgtagtgtc cttgacatgt ggcgacagca ggggtcaataa 600  
 tgtctatggg ctgagcatcg gctttctggc gttgatcctg gactcagtgg ctattgctgc 660  
 atcctatgtg atgattttca gggcctgat ggggttagcc actcctgagg ctaggcttaa 720  
 aaccctgggg acatgcgctt ctcacctctg tgccatcctg atcttttatg ttccatttgc 780  
 tgtttcttcc ctgattcacc gatttgggtc gtgtgtgcct cctccagtc acactctgct 840  
 ggccaacttc tatctcctca ttctccaat cctcaatccc attgtctatg ctgttcgcac 900  
 caagcagatc cgagagaggc ttctccaaat accaaggata gaaatgaaga ttagatgatt 960  
 actattttct tctctctcaa ataagctcat ggagaag 997

<210> 40  
 <211> 317  
 <212> PRT  
 <213> Homo sapiens

<400> 40  
 Met Leu Thr Phe His Asn Val Cys Ser Val Pro Ser Ser Phe Trp Leu  
 1 5 10 15  
 Thr Gly Ile Pro Gly Leu Glu Ser Leu His Val Trp Leu Ser Ile Pro  
 20 25 30  
 Phe Gly Ser Met Tyr Leu Val Ala Val Val Gly Asn Val Thr Ile Leu  
 35 40 45  
 Ala Val Val Lys Ile Glu Arg Ser Leu His Gln Pro Met Tyr Phe Phe  
 50 55 60  
 Leu Cys Met Leu Ala Ala Ile Asp Leu Val Leu Ser Thr Ser Thr Ile  
 65 70 75 80  
 Pro Lys Leu Leu Gly Ile Phe Trp Phe Gly Ala Cys Asp Ile Gly Leu  
 85 90 95  
 Asp Ala Cys Leu Gly Gln Met Phe Leu Ile His Cys Phe Ala Thr Val  
 100 105 110  
 Glu Ser Gly Ile Phe Leu Ala Met Ala Phe Asp Arg Tyr Val Ala Ile  
 115 120 125  
 Cys Asn Pro Leu Arg His Ser Met Val Leu Thr Tyr Thr Val Val Gly  
 130 135 140  
 Arg Leu Gly Leu Val Ser Leu Leu Arg Gly Val Leu Tyr Ile Gly Pro  
 145 150 155 160

Leu Pro Leu Met Ile Arg Leu Arg Leu Pro Leu Tyr Lys Thr His Val  
 165 170 175  
 Ile Ser His Ser Tyr Cys Glu His Met Ala Val Val Ala Leu Thr Cys  
 180 185 190  
 Gly Asp Ser Arg Val Asn Asn Val Tyr Gly Leu Ser Ile Gly Phe Leu  
 195 200 205  
 Val Leu Ile Leu Asp Ser Val Ala Ile Ala Ala Ser Tyr Val Met Ile  
 210 215 220  
 Phe Arg Ala Val Met Gly Leu Ala Thr Pro Glu Ala Arg Leu Lys Thr  
 225 230 235 240  
 Leu Gly Thr Cys Ala Ser His Leu Cys Ala Ile Leu Ile Phe Tyr Val  
 245 250 255  
 Pro Ile Ala Val Ser Ser Leu Ile His Arg Phe Gly Gln Cys Val Pro  
 260 265 270  
 Pro Pro Val His Thr Leu Leu Ala Asn Phe Tyr Leu Leu Ile Pro Pro  
 275 280 285  
 Ile Leu Asn Pro Ile Val Tyr Ala Val Arg Thr Lys Gln Ile Arg Glu  
 290 295 300  
 Arg Leu Leu Gln Ile Pro Arg Ile Glu Met Lys Ile Arg  
 305 310 315

<210> 41  
 <211> 997  
 <212> DNA  
 <213> Homo sapiens

<400> 41  
 agccatgctc acttttcata atgtctgctc agtaccaccagc tcctttctggc tcaactggcat 60  
 cccagggtcg gagtccttac acgtctggct ctccatcccc tttggctcca tgtacctggt 120  
 ggctgtggtg gggaatgtga ccatcctggc tgtggtaaag atagaacgca gcctgcacca 180  
 gcccatgtac tttttcttgt gcatgttggc tgccattgac ctggttctgt ctacttccac 240  
 tatacccaaa cttctgggaa tcttctggtt cgggtgcttg gacattggcc tggatgcctg 300  
 cttggggcaa atgttcctta tccactgctt tgccactgtt gagtcaggca tcttccttgc 360  
 catggctttt gatcgctacg tggccatctg caaccacta cgtcatagca tgggtgctcac 420  
 ttatacagtg gtgggtcggt tggggcttgt ttctctctct cgggggtgttc tctacattgg 480  
 acctctgcct ctgatgatcc gcctgcggct gcccctttat aaaacccatg ttatctccca 540  
 ctctactgt gagcacatgg ctgtagtgtc cttgacatgt ggcgacagca ggggtcaataa 600  
 tgtctatggg ctgagcatcg gctttctggt gttgatcctg gactcagtgg ctattgctgc 660  
 atcctatgtg atgattttca gggccgtgat ggggttagcc actcctgagg ctaggcttaa 720  
 aaccctgggg acatgcgctt ctacactctg tgccatcctg atcttttatg ttcccattgc 780  
 tgtttcttcc ctgattcacc gatttggtca gtgtgtgcct cctccagtcc acactctgct 840  
 ggccaacttc tatctcctca ttctccaat cctcaatccc attgtctatg ctgttcgcac 900  
 caagcagatc cgagagaggc ttctccaaat accaaggata gaaatgaaga ttagatgatt 960  
 actattttct tctctctcaa ataagctcat ggagaag 997

<210> 42  
 <211> 317  
 <212> PRT  
 <213> Homo sapiens

<400> 42  
 Met Leu Thr Phe His Asn Val Cys Ser Val Pro Ser Ser Phe Trp Leu

| 1   | 5   | 10  | 15  |
|---|-----|-----|-----|
| Thr Gly Ile Pro Gly Leu Glu Ser Leu His Val Trp Leu Ser Ile Pro | 20  | 25  | 30  |
| Phe Gly Ser Met Tyr Leu Val Ala Val Val Gly Asn Val Thr Ile Leu | 35  | 40  | 45  |
| Ala Val Val Lys Ile Glu Arg Ser Leu His Gln Pro Met Tyr Phe Phe | 50  | 55  | 60  |
| Leu Cys Met Leu Ala Ala Ile Asp Leu Val Leu Ser Thr Ser Thr Ile | 65  | 70  | 75  |
| Pro Lys Leu Leu Gly Ile Phe Trp Phe Gly Ala Cys Asp Ile Gly Leu | 85  | 90  | 95  |
| Asp Ala Cys Leu Gly Gln Met Phe Leu Ile His Cys Phe Ala Thr Val | 100 | 105 | 110 |
| Glu Ser Gly Ile Phe Leu Ala Met Ala Phe Asp Arg Tyr Val Ala Ile | 115 | 120 | 125 |
| Cys Asn Pro Leu Arg His Ser Met Val Leu Thr Tyr Thr Val Val Gly | 130 | 135 | 140 |
| Arg Leu Gly Leu Val Ser Leu Leu Arg Gly Val Leu Tyr Ile Gly Pro | 145 | 150 | 155 |
| Leu Pro Leu Met Ile Arg Leu Arg Leu Pro Leu Tyr Lys Thr His Val | 165 | 170 | 175 |
| Ile Ser His Ser Tyr Cys Glu His Met Ala Val Val Ala Leu Thr Cys | 180 | 185 | 190 |
| Gly Asp Ser Gly Val Asn Asn Val Tyr Gly Leu Ser Ile Gly Phe Leu | 195 | 200 | 205 |
| Val Leu Ile Leu Asp Ser Val Ala Ile Ala Ala Ser Tyr Val Met Ile | 210 | 215 | 220 |
| Phe Arg Ala Val Met Gly Leu Ala Thr Pro Glu Ala Arg Leu Lys Thr | 225 | 230 | 235 |
| Leu Gly Thr Cys Ala Ser His Leu Cys Ala Ile Leu Ile Phe Tyr Ile | 245 | 250 | 255 |
| Pro Ile Ala Val Ser Ser Leu Ile His Arg Phe Gly Gln Cys Val Pro | 260 | 265 | 270 |
| Pro Pro Val His Thr Leu Leu Ala Asn Phe Tyr Leu Leu Ile Pro Pro | 275 | 280 | 285 |
| Ile Leu Asn Pro Ile Val Tyr Ala Val Arg Thr Lys Gln Ile Arg Glu | 290 | 295 | 300 |
| Arg Leu Leu Gln Ile Pro Arg Ile Glu Met Lys Ile Arg             | 305 | 310 | 315 |

<210> 43  
 <211> 387  
 <212> PRT



<213> Homo sapiens

<400> 43

Met Asn Arg His His Leu Gln Asp His Phe Leu Glu Ile Asp Lys Lys  
1 5 10 15  
Asn Cys Cys Val Phe Arg Asp Asp Phe Ile Ala Lys Val Leu Pro Pro  
20 25 30  
Val Leu Gly Leu Glu Phe Ile Phe Gly Leu Leu Gly Asn Gly Leu Ala  
35 40 45  
Leu Trp Ile Phe Cys Phe His Leu Lys Ser Trp Lys Ser Ser Arg Ile  
50 55 60  
Phe Leu Phe Asn Leu Ala Val Ala Asp Phe Leu Leu Ile Ile Cys Leu  
65 70 75 80  
Pro Phe Val Met Asp Tyr Tyr Val Arg Arg Ser Asp Trp Asn Phe Gly  
85 90 95  
Asp Ile Pro Cys Arg Leu Val Leu Phe Met Phe Ala Met Asn Arg Gln  
100 105 110  
Gly Ser Ile Ile Phe Leu Thr Val Val Ala Val Asp Arg Tyr Phe Arg  
115 120 125  
Val Val His Pro His His Ala Leu Asn Lys Ile Ser Asn Trp Thr Ala  
130 135 140  
Ala Ile Ile Ser Cys Leu Leu Trp Gly Ile Thr Val Gly Leu Thr Val  
145 150 155 160  
His Leu Leu Lys Lys Lys Leu Leu Ile Gln Asn Gly Pro Ala Asn Val  
165 170 175  
Cys Ile Ser Phe Ser Ile Cys His Thr Phe Arg Trp His Glu Ala Met  
180 185 190  
Phe Leu Leu Glu Phe Leu Leu Pro Leu Gly Ile Ile Leu Phe Cys Ser  
195 200 205  
Ala Arg Ile Ile Trp Ser Leu Arg Gln Arg Gln Met Asp Arg His Ala  
210 215 220  
Lys Ile Lys Arg Ala Ile Thr Phe Ile Met Val Val Ala Ile Val Phe  
225 230 235 240  
Val Ile Cys Phe Leu Pro Ser Val Val Val Arg Ile Arg Ile Phe Trp  
245 250 255  
Leu Leu His Thr Ser Gly Thr Gln Asn Cys Glu Val Tyr Arg Ser Val  
260 265 270  
Asp Leu Ala Phe Phe Ile Thr Leu Ser Phe Thr Tyr Met Asn Ser Met  
275 280 285  
Leu Asp Pro Val Val Tyr Tyr Phe Ser Ser Pro Ser Phe Pro Asn Phe  
290 295 300  
Phe Ser Thr Leu Ile Asn Arg Cys Leu Gln Arg Lys Met Thr Gly Glu  
305 310 315 320

Pro Asp Asn Asn Arg Ser Thr Ser Val Glu Leu Thr Gly Asp Pro Asn  
325 330 335

Lys Thr Arg Gly Ala Pro Glu Ala Leu Met Ala Asn Ser Gly Glu Pro  
340 345 350

Trp Ser Pro Ser Tyr Leu Gly Pro Thr Ser Asn Asn His Ser Lys Lys  
355 360 365

Gly His Cys His Gln Glu Pro Ala Ser Leu Glu Lys Gln Leu Gly Cys  
370 375 380

Cys Ile Glu  
385

<210> 44  
<211> 360  
<212> PRT  
<213> Mus musculus

<400> 44  
Met Ser Lys Ser Asp His Phe Leu Val Ile Asn Gly Lys Asn Cys Cys  
1 5 10 15

Val Phe Arg Asp Glu Asn Ile Ala Lys Val Leu Pro Pro Val Leu Gly  
20 25 30

Leu Glu Phe Val Phe Gly Leu Leu Gly Asn Gly Leu Ala Leu Trp Ile  
35 40 45

Phe Cys Phe His Leu Lys Ser Trp Lys Ser Ser Arg Ile Phe Leu Phe  
50 55 60

Asn Leu Ala Val Ala Asp Phe Leu Leu Ile Ile Cys Leu Pro Phe Leu  
65 70 75 80

Thr Asp Asn Tyr Val His Asn Trp Asp Trp Arg Phe Gly Gly Ile Pro  
85 90 95

Cys Arg Val Met Leu Phe Met Leu Ala Met Asn Arg Gln Gly Ser Ile  
100 105 110

Ile Phe Leu Thr Val Val Ala Val Asp Arg Tyr Phe Arg Val Val His  
115 120 125

Pro His His Phe Leu Asn Lys Ile Ser Asn Arg Thr Ala Ala Ile Ile  
130 135 140

Ser Cys Phe Leu Trp Gly Leu Thr Ile Gly Leu Thr Val His Leu Leu  
145 150 155 160

Tyr Thr Asn Met Met Thr Lys Asn Gly Glu Ala Tyr Leu Cys Ser Ser  
165 170 175

Phe Ser Ile Cys Tyr Asn Phe Arg Trp His Asp Ala Met Phe Leu Leu  
180 185 190

Glu Phe Phe Leu Pro Leu Ala Ile Ile Leu Phe Cys Ser Gly Arg Ile  
195 200 205

Ile Trp Ser Leu Arg Gln Arg Gln Met Asp Arg His Ala Lys Ile Lys  
210 215 220

Arg Ala Ile Asn Phe Ile Met Val Val Ala Ile Val Phe Ile Ile Cys  
225 230 235 240

Phe Leu Pro Ser Val Ala Val Arg Ile Arg Ile Phe Trp Leu Leu Tyr  
245 250 255

Lys Tyr Asn Val Arg Asn Cys Asp Ile Tyr Ser Ser Val Asp Leu Ala  
260 265 270

Phe Phe Thr Thr Leu Ser Phe Thr Tyr Met Asn Ser Met Leu Asp Pro  
275 280 285

Val Val Tyr Tyr Phe Ser Ser Pro Ser Phe Pro Asn Phe Phe Ser Thr  
290 295 300

Cys Ile Asn Arg Cys Leu Arg Lys Lys Thr Leu Gly Glu Pro Asp Asn  
305 310 315 320

Asn Arg Ser Thr Ser Val Glu Leu Thr Gly Asp Pro Ser Thr Thr Arg  
325 330 335

Ser Ile Pro Gly Ala Leu Met Ala Asp Pro Ser Glu Pro Gly Ser Pro  
340 345 350

Pro Tyr Leu Ala Ser Thr Ser Arg  
355 360

<210> 45

<211> 319

<212> PRT

<213> Mus musculus

<400> 45

Met Glu His Thr Asn Cys Ser Ala Ala Ser Thr Val Val Glu Thr Ala  
1 5 10 15

Val Gly Thr Met Leu Thr Leu Glu Cys Val Leu Gly Leu Met Gly Asn  
20 25 30

Ala Val Ala Leu Trp Thr Phe Phe Tyr Arg Leu Lys Val Trp Lys Pro  
35 40 45

Tyr Ala Val Tyr Leu Phe Asn Leu Val Val Ala Asp Leu Leu Leu Ala  
50 55 60

Thr Ser Val Pro Phe Phe Ala Ala Phe Tyr Leu Lys Gly Lys Thr Trp  
65 70 75 80

Lys Leu Gly His Met Pro Cys Gln Leu Leu Leu Phe Leu Leu Ala Phe  
85 90 95

Ser Cys Gly Val Gly Val Ala Phe Leu Met Thr Val Ala Leu Asp Arg  
100 105 110

Tyr Leu His Val Val His Pro Arg Leu Arg Val Asn Leu Leu Ser Leu  
115 120 125

Arg Ala Ala Trp Gly Ile Ser Ser Leu Ile Trp Leu Leu Met Val Val  
130 135 140

Leu Thr Pro Gln Asn Leu Leu Thr Cys Arg Thr Thr Gln Asn Ser Thr  
35

[illegible][illegible][illegible]

Leu Phe Leu Thr Cys Ile Ser Val His Arg Tyr Thr Gly Val Val His  
 130 135 140  
 Pro Leu Lys Ser Leu Gly Arg Leu Lys Lys Lys Asn Ala Val Tyr Val  
 145 150 155 160  
 Ser Ser Leu Val Trp Ala Leu Val Val Ala Val Ile Ala Pro Ile Leu  
 165 170 175  
 Phe Tyr Ser Gly Thr Gly Val Arg Arg Asn Lys Thr Ile Thr Cys Tyr  
 180 185 190  
 Asp Thr Thr Ala Asp Glu Tyr Leu Arg Ser Tyr Phe Val Tyr Ser Met  
 195 200 205  
 Cys Thr Thr Val Phe Met Phe Cys Ile Pro Phe Ile Val Ile Leu Gly  
 210 215 220  
 Cys Tyr Gly Leu Ile Val Lys Ala Leu Ile Tyr Lys Asp Leu Asp Asn  
 225 230 235 240  
 Ser Pro Leu Arg Arg Lys Ser Ile Tyr Leu Val Ile Ile Val Leu Thr  
 245 250 255  
 Val Phe Ala Val Ser Tyr Leu Pro Phe His Val Met Lys Thr Leu Asn  
 260 265 270  
 Leu Arg Ala Arg Leu Asp Phe Gln Thr Pro Gln Met Cys Ala Phe Asn  
 275 280 285  
 Asp Lys Val Tyr Ala Thr Tyr Gln Val Thr Arg Gly Leu Ala Ser Leu  
 290 295 300  
 Asn Ser Cys Val Asp Pro Ile Leu Tyr Phe Leu Ala Gly Asp Thr Phe  
 305 310 315 320  
 Arg Arg Arg Leu Ser Arg Ala Thr Arg Lys Ser Ser Arg Arg Ser Glu  
 325 330 335  
 Pro Asn Val Gln Ser Lys Ser Glu Glu Met Thr Leu Asn Ile Leu Thr  
 340 345 350  
 Glu Tyr Lys Gln Asn Gly Asp Thr Ser Leu  
 355 360

<210> 47

<211> 362

<212> PRT

<213> Meleagris gallopavo

<400> 47

Met Thr Glu Ala Leu Ile Ser Ala Ala Leu Asn Gly Thr Gln Pro Glu  
 1 5 10 15  
 Leu Leu Ala Gly Gly Trp Ala Ala Gly Asn Ala Ser Thr Lys Cys Ser  
 20 25 30  
 Leu Thr Lys Thr Gly Phe Gln Phe Tyr Tyr Leu Pro Thr Val Tyr Ile  
 35 40 45  
 Leu Val Phe Ile Thr Gly Phe Leu Gly Asn Ser Val Ala Ile Trp Met  
 50 55 60

Phe Val Phe His Met Arg Pro Trp Ser Gly Ile Ser Val Tyr Met Phe  
 65 70 75 80  
 Asn Leu Ala Leu Ala Asp Phe Leu Tyr Val Leu Thr Leu Pro Ala Leu  
 85 90 95  
 Ile Phe Tyr Tyr Phe Asn Lys Thr Asp Trp Ile Phe Gly Asp Val Met  
 100 105 110  
 Cys Lys Leu Gln Arg Phe Ile Phe His Val Asn Leu Tyr Gly Ser Ile  
 115 120 125  
 Leu Phe Leu Thr Cys Ile Ser Val His Arg Tyr Thr Gly Val Val His  
 130 135 140  
 Pro Leu Lys Ser Leu Gly Arg Leu Lys Lys Lys Asn Ala Val Tyr Val  
 145 150 155 160  
 Ser Ser Leu Val Trp Ala Leu Val Val Ala Val Ile Ala Pro Ile Leu  
 165 170 175  
 Phe Tyr Ser Gly Thr Gly Val Arg Arg Asn Lys Thr Ile Thr Cys Tyr  
 180 185 190  
 Asp Thr Thr Ala Asp Glu Tyr Leu Arg Ser Tyr Phe Val Tyr Ser Met  
 195 200 205  
 Cys Thr Thr Val Phe Met Phe Cys Ile Pro Phe Ile Val Ile Leu Gly  
 210 215 220  
 Cys Tyr Gly Leu Ile Val Lys Ala Leu Ile Tyr Lys Asp Leu Asp Asn  
 225 230 235 240  
 Ser Pro Leu Arg Arg Lys Ser Ile Tyr Leu Val Ile Ile Val Leu Thr  
 245 250 255  
 Val Phe Ala Val Ser Tyr Leu Pro Phe His Val Met Lys Thr Leu Asn  
 260 265 270  
 Leu Arg Ala Arg Leu Asp Phe Gln Thr Pro Gln Met Cys Ala Phe Asn  
 275 280 285  
 Asp Lys Val Tyr Ala Thr Tyr Gln Val Thr Arg Gly Leu Ala Ser Leu  
 290 295 300  
 Asn Ser Cys Val Asp Pro Ile Leu Tyr Phe Leu Ala Gly Asp Thr Phe  
 305 310 315 320  
 Arg Arg Arg Leu Ser Arg Ala Thr Arg Lys Ser Ser Arg Arg Ser Glu  
 325 330 335  
 Pro Asn Val Gln Ser Lys Ser Glu Glu Met Thr Leu Asn Ile Leu Thr  
 340 345 350  
 Glu Tyr Lys Gln Asn Gly Asp Thr Ser Leu  
 355 360

<210> 48

<211> 469

<212> PRT

<213> Homo sapiens

<400> 48

Met Gln Met Ala Asp Ala Ala Thr Ile Ala Thr Met Asn Lys Ala Ala  
1 5 10 15

Gly Gly Asp Lys Leu Ala Glu Leu Phe Ser Leu Val Pro Asp Leu Leu  
20 25 30

Glu Ala Ala Asn Thr Ser Gly Asn Ala Ser Leu Gln Leu Pro Asp Leu  
35 40 45

Trp Trp Glu Leu Gly Leu Glu Leu Pro Asp Gly Ala Pro Pro Gly His  
50 55 60

Pro Pro Gly Ser Gly Gly Ala Glu Ser Ala Asp Thr Glu Ala Arg Val  
65 70 75 80

Arg Ile Leu Ile Ser Val Val Tyr Trp Val Val Cys Ala Leu Gly Leu  
85 90 95

Ala Gly Asn Leu Leu Val Leu Tyr Leu Met Lys Ser Met Gln Gly Trp  
100 105 110

Arg Lys Ser Ser Ile Asn Leu Phe Val Thr Asn Leu Ala Leu Thr Asp  
115 120 125

Phe Gln Phe Val Leu Thr Leu Pro Phe Trp Ala Val Glu Asn Ala Leu  
130 135 140

Asp Phe Lys Trp Pro Phe Gly Lys Ala Met Cys Lys Ile Val Ser Met  
145 150 155 160

Val Thr Ser Met Asn Met Tyr Ala Ser Val Phe Phe Leu Thr Ala Met  
165 170 175

Ser Val Thr Arg Tyr His Ser Val Ala Ser Ala Leu Lys Ser His Arg  
180 185 190

Thr Arg Gly His Gly Arg Gly Asp Cys Cys Gly Arg Ser Leu Gly Asp  
195 200 205

Ser Cys Cys Phe Ser Ala Lys Ala Leu Cys Val Trp Ile Trp Ala Leu  
210 215 220

Ala Ala Leu Ala Ser Leu Pro Ser Ala Ile Phe Ser Thr Thr Val Lys  
225 230 235 240

Val Met Gly Glu Glu Leu Cys Leu Val Arg Phe Pro Asp Lys Leu Leu  
245 250 255

Gly Arg Asp Arg Gln Phe Trp Leu Gly Leu Tyr His Ser Gln Lys Val  
260 265 270

Leu Leu Gly Phe Val Leu Pro Leu Gly Ile Ile Ile Leu Cys Tyr Leu  
275 280 285

Leu Leu Val Arg Phe Ile Ala Asp Arg Arg Ala Ala Gly Thr Lys Gly  
290 295 300

Gly Ala Ala Val Ala Gly Gly Arg Pro Thr Gly Ala Ser Ala Arg Arg  
305 310 315 320

Leu Ser Lys Val Thr Lys Ser Val Thr Ile Val Val Leu Ser Phe Phe  
39





Ala Lys Val Thr Cys Val Ile Ile Trp Leu Met Ala Gly Leu Ala Ser  
145 150 155 160

Leu Pro Ala Val Ile His Arg Asn Val Phe Phe Ile Glu Asn Thr Asn  
165 170 175

Ile Thr Val Cys Ala Phe His Tyr Glu Ser Gln Asn Ser Thr Leu Pro  
180 185 190

Ile Gly Leu Gly Leu Thr Lys Asn Ile Leu Gly Phe Met Phe Pro Phe  
195 200 205

Leu Ile Ile Leu Thr Ser Tyr Thr Leu Ile Trp Lys Ala Leu Lys Lys  
210 215 220

Ala Tyr Glu Ile Gln Lys Asn Lys Pro Arg Asn Asp Asp Ile Phe Lys  
225 230 235 240

Ile Ile Met Ala Ile Val Leu Phe Phe Phe Phe Ser Trp Val Pro His  
245 250 255

Gln Ile Phe Thr Phe Leu Asp Val Leu Ile Gln Leu Gly Ile Ile His  
260 265 270

Asp Cys Lys Ile Ser Asp Ile Val Asp Thr Ala Met Pro Ile Thr Ile  
275 280 285

Cys Ile Ala Tyr Phe Asn Asn Cys Leu Asn Pro Leu Phe Tyr Gly Phe  
290 295 300

Leu Gly Lys Lys Phe Lys Lys Tyr Phe Leu Gln Leu Leu Lys Tyr Ile  
305 310 315 320

Pro Pro Lys Ala Lys Ser His Ser Thr Leu Ser Thr Lys Met Ser Thr  
325 330 335

Leu Ser Tyr Arg Pro Ser Asn Asn Val Ser Ser Ser Ala Lys Lys Pro  
340 345 350

Val Gln Cys Phe Glu Val Glu  
355

<210> 50  
<211> 359  
<212> PRT  
<213> Cavia porcellus

<400> 50  
Met Ile Leu Asn Ser Ser Thr Glu Asp Gly Ile Lys Arg Ile Gln Asp  
1 5 10 15

Asp Cys Pro Lys Ala Gly Arg His Ser Tyr Ile Phe Val Met Ile Pro  
20 25 30

Thr Leu Tyr Ser Ile Ile Phe Val Val Gly Ile Phe Gly Asn Ser Leu  
35 40 45

Val Val Ile Val Ile Tyr Phe Tyr Met Lys Leu Lys Thr Val Ala Ser  
50 55 60

Val Phe Leu Leu Asn Leu Ala Leu Ala Asp Ile Cys Phe Leu Leu Thr  
65 70 75 80

Leu Pro Leu Trp Ala Val Tyr Thr Ala Met Glu Tyr Arg Trp Pro Phe  
                     85                    90                    95  
 Gly Asn Tyr Leu Cys Lys Ile Ala Ser Ala Ser Val Ser Phe Asn Leu  
                     100                    105                    110  
 Tyr Ala Ser Val Phe Leu Leu Thr Cys Leu Ser Ile Asp Arg Tyr Leu  
                     115                    120                    125  
 Ala Ile Val His Pro Met Lys Ser Arg Leu Arg Arg Thr Met Leu Val  
                     130                    135                    140  
 Ala Lys Val Thr Cys Val Ile Ile Trp Leu Met Ala Gly Leu Ala Ser  
                     145                    150                    155                    160  
 Leu Pro Ala Val Ile His Arg Asn Val Phe Phe Ile Glu Asn Thr Asn  
                     165                    170                    175  
 Ile Thr Val Cys Ala Phe His Tyr Glu Ser Gln Asn Ser Thr Leu Pro  
                     180                    185                    190  
 Ile Gly Leu Gly Leu Thr Lys Asn Ile Leu Gly Phe Met Phe Pro Phe  
                     195                    200                    205  
 Leu Ile Ile Leu Thr Ser Tyr Thr Leu Ile Trp Lys Ala Leu Lys Lys  
                     210                    215                    220  
 Ala Tyr Glu Ile Gln Lys Asn Lys Pro Arg Asn Asp Asp Ile Phe Lys  
                     225                    230                    235                    240  
 Ile Ile Met Ala Ile Val Leu Phe Phe Phe Phe Ser Trp Val Pro His  
                     245                    250                    255  
 Gln Ile Phe Thr Phe Leu Asp Val Leu Ile Gln Leu Gly Ile Ile His  
                     260                    265                    270  
 Asp Cys Lys Ile Ser Asp Ile Val Asp Thr Ala Met Pro Ile Thr Ile  
                     275                    280                    285  
 Cys Ile Ala Tyr Phe Asn Asn Cys Leu Asn Pro Leu Phe Tyr Gly Phe  
                     290                    295                    300  
 Leu Gly Lys Lys Phe Lys Lys Tyr Phe Leu Gln Leu Leu Lys Tyr Ile  
                     305                    310                    315                    320  
 Pro Pro Lys Ala Lys Ser His Ser Thr Leu Ser Thr Lys Met Ser Thr  
                     325                    330                    335  
 Leu Ser Tyr Arg Pro Ser Asp Asn Val Ser Ser Ser Ala Lys Lys Pro  
                     340                    345                    350  
 Val Gln Cys Phe Glu Val Glu  
                     355

<210> 51

<211> 359

<212> PRT

<213> Mus musculus

<400> 51

Met Ala Leu Asn Ser Ser Thr Glu Asp Gly Ile Lys Arg Ile Gln Asp

|   |     |     |     |
|---|-----|-----|-----|
| 1   | 5   | 10  | 15  |
| Asp Cys Pro Arg Ala Gly Arg His Ser Tyr Ile Phe Val Met Ile Pro | 20  | 25  | 30  |
| Thr Leu Tyr Ser Ile Ile Phe Val Val Gly Ile Phe Gly Asn Ser Leu | 35  | 40  | 45  |
| Val Val Ile Val Ile Tyr Phe Tyr Met Lys Leu Lys Thr Val Ala Ser | 50  | 55  | 60  |
| Val Phe Leu Leu Asn Leu Ala Leu Ala Asp Leu Cys Phe Leu Leu Thr | 65  | 70  | 75  |
| Leu Pro Leu Trp Ala Val Tyr Thr Ala Met Glu Tyr Arg Trp Pro Phe | 85  | 90  | 95  |
| Gly Asn His Leu Cys Lys Ile Ala Ser Ala Ser Val Ser Phe Asn Leu | 100 | 105 | 110 |
| Tyr Ala Ser Val Phe Leu Leu Thr Cys Leu Ser Ile Asp Arg Tyr Leu | 115 | 120 | 125 |
| Ala Ile Val His Pro Met Lys Ser Arg Leu Arg Arg Thr Met Leu Val | 130 | 135 | 140 |
| Ala Lys Val Thr Cys Ile Ile Ile Trp Leu Met Ala Gly Leu Ala Ser | 145 | 150 | 155 |
| Leu Pro Ala Val Ile His Arg Asn Val Tyr Phe Ile Glu Asn Thr Asn | 165 | 170 | 175 |
| Ile Thr Val Cys Ala Phe His Tyr Glu Ser Arg Asn Ser Thr Leu Pro | 180 | 185 | 190 |
| Ile Gly Leu Gly Leu Thr Lys Asn Ile Leu Gly Phe Leu Phe Pro Phe | 195 | 200 | 205 |
| Leu Ile Ile Leu Thr Ser Tyr Thr Leu Ile Trp Lys Ala Leu Lys Lys | 210 | 215 | 220 |
| Ala Tyr Glu Ile Gln Lys Asn Lys Pro Arg Asn Asp Asp Ile Phe Arg | 225 | 230 | 235 |
| Ile Ile Met Ala Ile Val Leu Phe Phe Phe Phe Ser Trp Val Pro His | 245 | 250 | 255 |
| Gln Ile Phe Thr Phe Leu Asp Val Leu Ile Gln Leu Gly Val Ile His | 260 | 265 | 270 |
| Asp Cys Lys Ile Ala Asp Ile Val Asp Thr Ala Met Pro Ile Thr Ile | 275 | 280 | 285 |
| Cys Ile Ala Tyr Phe Asn Asn Cys Leu Asn Pro Leu Phe Tyr Gly Phe | 290 | 295 | 300 |
| Leu Gly Lys Lys Phe Lys Lys Tyr Phe Leu Gln Leu Leu Lys Tyr Ile | 305 | 310 | 315 |
| Pro Pro Lys Ala Lys Ser His Ser Ser Leu Ser Thr Lys Met Ser Thr | 325 | 330 | 335 |
| Leu Ser Tyr Arg Pro Ser Asp Asn Met Ser Ser Ala Ala Lys Lys Pro |     |     |     |

340

345

350

Ala Ser Cys Ser Glu Val Glu  
355

<210> 52  
<211> 359  
<212> PRT  
<213> Mus musculus

<400> 52

Met Ala Leu Asn Ser Ser Thr Glu Asp Gly Ile Lys Arg Ile Gln Asp  
1 5 10 15

Asp Cys Pro Arg Ala Gly Arg His Ser Tyr Ile Phe Val Met Ile Pro  
20 25 30

Thr Leu Tyr Ser Ile Ile Phe Val Val Gly Ile Phe Gly Asn Ser Leu  
35 40 45

Val Val Ile Val Ile Tyr Phe Tyr Met Lys Leu Lys Thr Val Ala Ser  
50 55 60

Val Phe Leu Leu Asn Leu Ala Leu Ala Asp Leu Cys Phe Leu Leu Thr  
65 70 75 80

Leu Pro Leu Trp Ala Val Tyr Thr Ala Met Glu Tyr Arg Trp Pro Phe  
85 90 95

Gly Asn His Leu Cys Lys Ile Ala Ser Ala Ser Val Ser Phe Asn Leu  
100 105 110

Tyr Ala Ser Val Phe Leu Leu Thr Cys Leu Ser Ile Asp Arg Tyr Leu  
115 120 125

Ala Ile Val His Pro Met Lys Ser Arg Leu Arg Arg Thr Met Leu Val  
130 135 140

Ala Lys Val Thr Cys Ile Ile Ile Trp Leu Met Ala Gly Leu Ala Ser  
145 150 155 160

Leu Pro Ala Val Ile His Arg Asn Val Tyr Phe Ile Glu Asn Thr Asn  
165 170 175

Ile Thr Val Cys Ala Phe His Tyr Glu Ser Arg Asn Ser Thr Leu Pro  
180 185 190

Ile Gly Leu Gly Leu Thr Lys Asn Ile Leu Gly Phe Leu Phe Pro Phe  
195 200 205

Leu Ile Ile Leu Thr Ser Tyr Thr Leu Ile Trp Lys Ala Leu Lys Lys  
210 215 220

Ala Tyr Glu Ile Gln Lys Asn Lys Pro Arg Asn Asp Asp Ile Phe Arg  
225 230 235 240

Ile Ile Met Ala Ile Val Leu Phe Phe Phe Phe Ser Trp Val Pro His  
245 250 255

Gln Ile Phe Thr Phe Leu Asp Val Leu Ile Gln Leu Gly Val Ile His  
260 265 270

Asp Cys Lys Ile Ala Asp Ile Val Asp Thr Ala Met Pro Ile Thr Ile  
 275 280 285  
 Cys Ile Ala Tyr Phe Asn Asn Cys Leu Asn Pro Leu Phe Tyr Gly Phe  
 290 295 300  
 Leu Gly Lys Lys Phe Lys Lys Tyr Phe Leu Gln Leu Leu Lys Tyr Ile  
 305 310 315 320  
 Pro Pro Lys Ala Lys Ser His Ser Ser Leu Ser Thr Lys Met Ser Thr  
 325 330 335  
 Leu Ser Tyr Arg Pro Ser Asp Asn Met Ser Ser Ala Ala Lys Lys Pro  
 340 345 350  
 Ala Ser Cys Ser Glu Val Glu  
 355

<210> 53  
 <211> 318  
 <212> PRT  
 <213> Mus musculus

<220>  
 <221> VARIANT  
 <222> (286)  
 <223> Wherein Xaa is any amino acid.

<400> 53  
 Met Ser Pro Gly Asn Ser Ser Trp Ile His Pro Ser Ser Phe Leu Leu  
 1 5 10 15  
 Leu Gly Ile Pro Gly Leu Glu Glu Leu Gln Phe Trp Leu Gly Leu Pro  
 20 25 30  
 Phe Gly Thr Val Tyr Leu Ile Ala Val Leu Gly Asn Val Ile Ile Leu  
 35 40 45  
 Phe Val Ile Tyr Leu Glu His Ser Leu His Gln Pro Met Phe Tyr Leu  
 50 55 60  
 Leu Ala Ile Leu Ala Val Thr Asp Leu Gly Leu Ser Thr Ala Thr Val  
 65 70 75 80  
 Pro Arg Ala Leu Gly Ile Phe Trp Phe Gly Phe His Lys Ile Ala Phe  
 85 90 95  
 Arg Asp Cys Val Ala Gln Met Phe Phe Ile His Leu Phe Thr Gly Ile  
 100 105 110  
 Glu Thr Phe Met Leu Val Ala Met Ala Phe Asp Arg Tyr Ile Ala Ile  
 115 120 125  
 Cys Asn Pro Leu Arg Tyr Asn Thr Ile Leu Thr Asn Arg Thr Ile Cys  
 130 135 140  
 Ile Ile Val Gly Val Gly Leu Phe Lys Asn Phe Ile Leu Val Phe Pro  
 145 150 155 160  
 Leu Ile Phe Leu Ile Leu Arg Leu Ser Phe Cys Gly His Asn Ile Ile  
 165 170 175

Pro His Thr Tyr Cys Glu His Met Gly Ile Ala Arg Leu Ala Cys Val  
 180 185 190  
 Ser Ile Lys Val Asn Val Leu Phe Gly Leu Ile Leu Ile Ser Met Ile  
 195 200 205  
 Leu Leu Asp Val Val Leu Ser Ala Leu Ser Tyr Ala Lys Ile Leu His  
 210 215 220  
 Ala Val Phe Lys Leu Pro Ser Trp Glu Ala Arg Leu Lys Ala Leu Asn  
 225 230 235 240  
 Thr Cys Gly Ser His Val Cys Val Ile Leu Ala Phe Phe Thr Pro Ala  
 245 250 255  
 Phe Phe Ser Phe Leu Thr His Arg Phe Gly His Asn Ile Pro Arg Tyr  
 260 265 270  
 Ile His Ile Leu Leu Ala Asn Leu Tyr Val Ile Ile Pro Xaa Ala Leu  
 275 280 285  
 Asn Pro Ile Ile Tyr Gly Val Arg Thr Lys Gln Ile Gln Asp Arg Ala  
 290 295 300  
 Val Thr Ile Leu Cys Asn Glu Val Gly Gln Leu Ala Asp Asp  
 305 310 315

<210> 54

<211> 339

<212> PRT

<213> Mus musculus

<400> 54

Met Pro Glu Lys Met Leu Ser Lys Leu Ile Ala Tyr Leu Leu Leu Ile  
 1 5 10 15  
 Glu Ser Cys Arg Gln Thr Ala Gln Leu Val Lys Gly Arg Arg Ile Trp  
 20 25 30  
 Val Asp Ser Arg Pro His Trp Pro Asn Thr Thr His Tyr Arg Glu Leu  
 35 40 45  
 Glu Asp Gln His Val Trp Ile Ala Ile Pro Phe Cys Ser Met Tyr Ile  
 50 55 60  
 Leu Ala Leu Val Gly Asn Gly Thr Ile Leu Tyr Ile Ile Ile Thr Asp  
 65 70 75 80  
 Arg Ala Leu His Glu Pro Met Tyr Leu Phe Leu Cys Leu Leu Ser Ile  
 85 90 95  
 Thr Asp Leu Val Leu Cys Ser Thr Thr Leu Pro Lys Met Leu Ala Ile  
 100 105 110  
 Phe Trp Leu Arg Ser His Val Ile Ser Tyr His Gly Cys Leu Thr Gln  
 115 120 125  
 Met Phe Phe Val His Ala Val Phe Ala Thr Glu Ser Ala Val Leu Leu  
 130 135 140  
 Ala Met Ala Phe Asp Arg Tyr Val Ala Ile Cys Arg Pro Leu His Tyr  
 145 150 155 160

Thr Ser Ile Leu Asn Ala Val Val Ile Gly Lys Ile Gly Leu Ala Cys  
 165 170 175  
 Val Thr Arg Gly Leu Leu Phe Val Phe Pro Phe Val Ile Leu Ile Glu  
 180 185 190  
 Arg Leu Pro Phe Cys Gly His His Ile Ile Pro His Thr Tyr Cys Glu  
 195 200 205  
 His Met Gly Ile Ala Lys Leu Ala Cys Ala Ser Ile Lys Pro Asn Thr  
 210 215 220  
 Ile Tyr Gly Leu Thr Val Ala Leu Ser Val Thr Gly Met Asp Val Val  
 225 230 235 240  
 Leu Ile Ala Thr Ser Tyr Ile Leu Ile Leu Gln Ala Val Leu Arg Leu  
 245 250 255  
 Pro Ser Lys Asp Ala Gln Phe Arg Ala Phe Ser Thr Cys Gly Ala His  
 260 265 270  
 Ile Cys Val Ile Leu Val Phe Tyr Ile Pro Ala Phe Phe Ser Phe Phe  
 275 280 285  
 Thr His Arg Phe Gly His His Val Pro Pro Gln Val His Ile Ile Leu  
 290 295 300  
 Ala Asn Leu Tyr Leu Leu Val Pro Pro Val Leu Asn Pro Leu Val Tyr  
 305 310 315 320  
 Gly Ile Asn Thr Lys Gln Ile Arg Leu Arg Ile Leu Asp Phe Phe Val  
 325 330 335  
 Lys Arg Arg

<210> 55  
 <211> 318  
 <212> PRT  
 <213> Homo sapiens

<400> 55  
 Met Ser Asp Ser Asn Leu Ser Asp Asn His Leu Pro Asp Thr Phe Phe  
 1 5 10 15  
 Leu Thr Gly Ile Pro Gly Leu Glu Ala Ala His Phe Trp Ile Ala Ile  
 20 25 30  
 Pro Phe Cys Ala Met Tyr Leu Val Ala Leu Val Gly Asn Ala Ala Leu  
 35 40 45  
 Ile Leu Val Ile Ala Met Asp Asn Ala Leu His Ala Pro Met Tyr Leu  
 50 55 60  
 Phe Leu Cys Leu Leu Ser Leu Thr Asp Leu Ala Leu Ser Ser Thr Thr  
 65 70 75 80  
 Val Pro Lys Met Leu Ala Ile Leu Trp Leu His Ala Gly Glu Ile Ser  
 85 90 95  
 Phe Gly Gly Cys Leu Ala Gln Met Phe Cys Val His Ser Ile Tyr Ala  
 47

| 100  | 105 | 110 |
|--|-----|-----|
| Leu Glu Ser Ser Ile Leu Leu Ala Met Ala Phe Asp Arg Tyr Val Ala<br>115 120 125     |     |     |
| Ile Cys Asn Pro Leu Arg Tyr Thr Thr Ile Leu Asn His Ala Val Ile<br>130 135 140     |     |     |
| Gly Arg Ile Gly Phe Val Gly Leu Phe Arg Ser Val Ala Ile Val Ser<br>145 150 155 160 |     |     |
| Pro Phe Ile Phe Leu Leu Arg Arg Leu Pro Tyr Cys Gly His Arg Val<br>165 170 175     |     |     |
| Met Thr His Thr Tyr Cys Glu His Met Gly Ile Ala Arg Leu Ala Cys<br>180 185 190     |     |     |
| Ala Asn Ile Thr Val Asn Ile Val Tyr Gly Leu Thr Val Ala Leu Leu<br>195 200 205     |     |     |
| Ala Met Gly Leu Asp Ser Ile Leu Ile Ala Ile Ser Tyr Gly Phe Ile<br>210 215 220     |     |     |
| Leu His Ala Val Phe His Leu Pro Ser His Asp Ala Gln His Lys Ala<br>225 230 235 240 |     |     |
| Leu Ser Thr Cys Gly Ser His Ile Gly Ile Ile Leu Val Phe Tyr Ile<br>245 250 255     |     |     |
| Pro Ala Phe Phe Ser Phe Leu Thr His Arg Phe Gly His His Glu Val<br>260 265 270     |     |     |
| Pro Lys His Val His Ile Phe Leu Ala Asn Leu Tyr Val Leu Val Pro<br>275 280 285     |     |     |
| Pro Val Leu Asn Pro Ile Leu Tyr Gly Ala Arg Thr Lys Glu Ile Arg<br>290 295 300     |     |     |
| Ser Arg Leu Leu Lys Leu Leu His Leu Gly Lys Thr Ser Ile<br>305 310 315             |     |     |
| <210> 56   |     |     |
| <211> 321  |     |     |
| <212> PRT  |     |     |
| <213> Mus musculus   |     |     |
| <400> 56   |     |     |
| Met Asn Ser Lys Ala Ser Met Leu Gly Thr Asn Phe Thr Ile Ile His<br>1 5 10 15       |     |     |
| Pro Thr Val Phe Ile Leu Leu Gly Ile Pro Gly Leu Glu Gln Tyr His<br>20 25 30        |     |     |
| Thr Trp Leu Ser Ile Pro Phe Cys Leu Met Tyr Ile Ala Ala Val Leu<br>35 40 45        |     |     |
| Gly Asn Gly Ala Leu Ile Leu Val Val Leu Ser Glu Arg Thr Leu His<br>50 55 60        |     |     |
| Glu Pro Met Tyr Val Phe Leu Ser Met Leu Ala Gly Thr Asp Ile Leu<br>65 70 75 80     |     |     |





Val Leu Leu Ile Phe Leu Ile Val Thr Glu Arg Ser Leu His Glu Pro  
 50 55 60  
 Met Tyr Phe Phe Leu Ser Met Leu Ala Leu Ala Asp Leu Leu Leu Ser  
 65 70 75 80  
 Thr Ala Thr Ala Pro Lys Met Leu Ala Ile Phe Trp Phe His Ser Arg  
 85 90 95  
 Gly Ile Ser Phe Gly Ser Cys Val Ser Gln Met Phe Phe Ile His Phe  
 100 105 110  
 Ile Phe Val Ala Glu Ser Ala Ile Leu Leu Ala Met Ala Phe Asp Arg  
 115 120 125  
 Tyr Val Ala Ile Cys Tyr Pro Leu Arg Tyr Thr Thr Ile Leu Thr Ser  
 130 135 140  
 Ser Val Ile Gly Lys Ile Gly Thr Ala Ala Val Val Arg Ser Phe Leu  
 145 150 155 160  
 Ile Cys Phe Pro Phe Ile Phe Leu Val Tyr Arg Leu Leu Tyr Cys Gly  
 165 170 175  
 Lys His Ile Ile Pro His Ser Tyr Cys Glu His Met Gly Ile Ala Arg  
 180 185 190  
 Leu Ala Cys Asp Asn Ile Thr Val Asn Ile Ile Tyr Gly Leu Thr Met  
 195 200 205  
 Ala Leu Leu Ser Thr Gly Leu Asp Ile Leu Leu Ile Ile Ile Ser Tyr  
 210 215 220  
 Thr Met Ile Leu Arg Thr Val Phe Gln Ile Pro Ser Trp Ala Ala Arg  
 225 230 235 240  
 Tyr Lys Ala Leu Asn Thr Cys Gly Ser His Ile Cys Val Ile Leu Leu  
 245 250 255  
 Phe Tyr Thr Pro Ala Phe Phe Ser Phe Phe Ala His Arg Phe Gly Gly  
 260 265 270  
 Lys Thr Val Pro Arg His Ile His Ile Leu Val Ala Asn Leu Tyr Val  
 275 280 285  
 Val Val Pro Pro Met Leu Asn Pro Ile Ile Tyr Gly Val Lys Thr Lys  
 290 295 300  
 Gln Ile Gln Asp Arg Val Val Phe Leu Phe Ser Ser Val Ser Thr Cys  
 305 310 315 320  
 Gln His Asp Ser Arg Cys  
 325

<210> 58

<211> 319

<212> PRT

<213> Mus musculus

<400> 58

Met Ala Thr Ser Asn Ser Ser Thr Ile Val Ser Ser Thr Phe Tyr Leu

| 1   | 5   | 10  | 15  |
|---|-----|-----|-----|
| Thr Gly Ile Pro Gly Tyr Glu Glu Phe His His Trp Ile Ser Ile Pro | 20  | 25  | 30  |
| Phe Cys Phe Leu Tyr Leu Val Gly Ile Thr Gly Asn Cys Met Ile Leu | 35  | 40  | 45  |
| His Ile Val Arg Thr Asp Pro Arg Leu His Glu Pro Met Tyr Tyr Phe | 50  | 55  | 60  |
| Leu Ala Met Leu Ser Leu Thr Asp Met Ala Met Ser Leu Pro Thr Met | 65  | 70  | 75  |
| Met Ser Leu Phe Arg Val Leu Trp Ser Ile Ser Arg Glu Ile Gln Phe | 85  | 90  | 95  |
| Asn Ile Cys Val Val Gln Met Phe Leu Ile His Thr Phe Ser Phe Thr | 100 | 105 | 110 |
| Glu Ser Ser Val Leu Leu Ala Met Ala Leu Asp Arg Tyr Val Ala Ile | 115 | 120 | 125 |
| Cys His Pro Leu Arg Tyr Ala Thr Ile Leu Thr Pro Lys Leu Ile Ala | 130 | 135 | 140 |
| Lys Ile Gly Thr Ala Ala Leu Leu Arg Ser Ser Ile Leu Ile Ile Pro | 145 | 150 | 155 |
| Leu Ile Ala Arg Leu Ala Phe Phe Pro Phe Cys Gly Ser His Val Leu | 165 | 170 | 175 |
| Ser His Ser Tyr Cys Leu His Gln Asp Met Ile Arg Leu Ala Cys Ala | 180 | 185 | 190 |
| Asp Ile Arg Phe Asn Val Ile Tyr Gly Leu Val Leu Ile Thr Leu Leu | 195 | 200 | 205 |
| Trp Gly Met Asp Ser Leu Gly Ile Phe Val Ser Tyr Val Leu Ile Leu | 210 | 215 | 220 |
| His Ser Val Leu Lys Ile Ala Ser Arg Glu Gly Arg Leu Lys Ala Leu | 225 | 230 | 235 |
| Asn Thr Cys Ala Ser His Ile Cys Ala Val Leu Ile Leu Tyr Val Pro | 245 | 250 | 255 |
| Met Ile Gly Leu Ser Ile Val His Arg Phe Ala Lys His Ser Ser Pro | 260 | 265 | 270 |
| Leu Ile His Ile Phe Met Ala His Ile Tyr Leu Leu Val Pro Pro Val | 275 | 280 | 285 |
| Leu Asn Pro Ile Ile Tyr Ser Val Lys Thr Lys Gln Ile Arg Glu Gly | 290 | 295 | 300 |
| Ile Leu His Leu Leu Cys Ser Pro Lys Ile Ser Ser Ile Thr Met     | 305 | 310 | 315 |

<210> 59  
 <211> 317  
 <212> PRT

<213> Mus musculus

<400> 59

Met Lys Val Ser Ile Pro Pro Arg Ala Asn Phe Ser Tyr Ala Ile Phe  
1 5 10 15  
Leu Leu Thr Gly Phe Pro Gly Leu Glu Trp Ala His His Trp Ile Ser  
20 25 30  
Leu Pro Ile Phe Met Gly Tyr Phe Val Ala Ile Met Gly Asn Ala Thr  
35 40 45  
Ile Leu His Leu Val Arg Thr Asp Pro Ser Leu His Gln Pro Met Tyr  
50 55 60  
Tyr Phe Leu Ala Ile Leu Ala Val Thr Asp Leu Gly Leu Cys Met Ser  
65 70 75 80  
Thr Leu Pro Ser Val Leu Gly Val Leu Trp Phe Asp Ala Arg Met Val  
85 90 95  
Gly Leu Val Pro Cys Val Leu Gln Gln His Phe Leu His Ser Phe Ser  
100 105 110  
Phe Met Glu Ser Ala Val Leu Phe Ala Met Ala Leu Asp Arg Leu Ile  
115 120 125  
Ala Ile Arg Phe Pro Leu Arg Tyr Ala Ser Val Leu Thr Gly Pro Arg  
130 135 140  
Val Ala Leu Ile Gly Thr Val Leu Gly Met Arg Ser Ala Ala Ile Thr  
145 150 155 160  
Ala Ala Pro Ser Leu His Leu Leu Thr Phe Asp Tyr Cys His Pro Gly  
165 170 175  
Ala Leu Ser His Ala Tyr Cys Leu His Gln Asp Met Ile Arg Leu Ala  
180 185 190  
Cys Ser Asp Thr Arg Phe Asn Arg Leu Tyr Gly Leu Cys Ile Ile Met  
195 200 205  
Leu Ala Met Gly Ser Asp Val Leu Phe Ile Leu Leu Ser Tyr Ala Val  
210 215 220  
Ile Leu Arg Thr Val Leu Ala Ile Ala Ser Ala Gly Glu Arg Leu Lys  
225 230 235 240  
Ala Leu Asn Thr Cys Val Ser His Ile Leu Ala Val Leu Cys Phe Tyr  
245 250 255  
Val Pro Val Leu Gly Leu Ser Ile Val His Arg Phe Gly Gln His Thr  
260 265 270  
Ser Pro Leu Val His Ile Leu Met Gly Thr Val Ser Val Leu Phe Pro  
275 280 285  
Pro Val Met Asn Pro Val Ile Tyr Ser Ile Lys Thr Gln Gln Ile Arg  
290 295 300  
Arg Ala Ile Val Lys Val Ile Ser Leu Gly Lys Ile Gln  
305 310 315

<210> 60  
 <211> 314  
 <212> PRT  
 <213> Homo sapiens

<400> 60

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Met Leu Gly Leu Asn Gly Thr Pro Phe Gln Pro Ala Thr Leu Gln Leu
  1             5             10             15

Thr Gly Ile Pro Gly Ile Gln Thr Gly Leu Thr Trp Val Ala Leu Ile
      20             25             30

Phe Cys Ile Leu Tyr Met Ile Ser Ile Val Gly Asn Leu Ser Ile Leu
      35             40             45

Thr Leu Val Phe Trp Glu Pro Ala Leu His Gln Pro Met Tyr Tyr Phe
      50             55             60

Leu Ser Met Leu Ala Leu Asn Asp Leu Gly Val Ser Phe Ser Thr Leu
      65             70             75             80

Pro Thr Val Ile Ser Thr Phe Cys Phe Asn Tyr Asn His Val Ala Phe
      85             90             95

Asn Ala Cys Leu Val Gln Met Phe Phe Ile His Thr Phe Ser Phe Met
      100            105            110

Glu Ser Gly Ile Leu Leu Ala Met Ser Leu Asp Arg Phe Val Ala Ile
      115            120            125

Cys Tyr Pro Leu Arg Tyr Val Thr Val Leu Thr His Asn Arg Ile Leu
      130            135            140

Ala Met Gly Leu Gly Ile Leu Thr Lys Ser Phe Thr Thr Leu Phe Pro
      145            150            155            160

Phe Pro Phe Val Val Lys Arg Leu Pro Phe Cys Lys Gly Asn Val Leu
      165            170            175

His His Ser Tyr Cys Leu His Pro Asp Leu Met Lys Val Ala Cys Gly
      180            185            190

Asp Ile His Val Asn Asn Ile Tyr Gly Leu Leu Val Ile Ile Phe Thr
      195            200            205

Tyr Gly Met Asp Ser Thr Phe Ile Leu Leu Ser Tyr Ala Leu Ile Leu
      210            215            220

Arg Ala Met Leu Val Ile Ile Ser Gln Glu Gln Arg Leu Lys Ala Leu
      225            230            235            240

Asn Thr Cys Met Ser His Ile Cys Ala Val Leu Ala Phe Tyr Val Pro
      245            250            255

Ile Ile Ala Val Ser Met Ile His Arg Phe Trp Lys Ser Ala Pro Pro
      260            265            270

Val Val His Val Met Met Ser Asn Val Tyr Leu Phe Val Pro Pro Met
      275            280            285

Leu Asn Pro Ile Ile Tyr Ser Val Lys Thr Lys Glu Ile Arg Lys Gly
      290            295            300

```

Ile Leu Lys Phe Phe His Lys Ser Gln Ala  
305 310

<210> 61  
<211> 312  
<212> PRT  
<213> Homo sapiens

<400> 61

Met Gly Leu Phe Asn Val Thr His Pro Ala Phe Phe Leu Leu Thr Gly  
1 5 10 15

Ile Pro Gly Leu Glu Ser Ser His Ser Trp Leu Ser Gly Pro Leu Cys  
20 25 30

Val Met Tyr Ala Val Ala Leu Gly Gly Asn Thr Val Ile Leu Gln Ala  
35 40 45

Val Arg Val Glu Pro Ser Leu His Glu Pro Met Tyr Tyr Phe Leu Ser  
50 55 60

Met Leu Ser Phe Ser Asp Val Ala Ile Ser Met Ala Thr Leu Pro Thr  
65 70 75 80

Val Leu Arg Thr Phe Cys Leu Asn Ala Arg Asn Ile Thr Phe Asp Ala  
85 90 95

Cys Leu Ile Gln Met Phe Leu Ile His Phe Phe Ser Met Met Glu Ser  
100 105 110

Gly Ile Leu Leu Ala Met Ser Phe Asp Arg Tyr Val Ala Ile Cys Asp  
115 120 125

Pro Leu Arg Tyr Ala Thr Val Leu Thr Thr Glu Val Ile Ala Ala Met  
130 135 140

Gly Leu Gly Ala Ala Ala Arg Ser Phe Ile Thr Leu Phe Pro Leu Pro  
145 150 155 160

Phe Leu Ile Lys Arg Leu Pro Ile Cys Arg Ser Asn Val Leu Ser His  
165 170 175

Ser Tyr Cys Leu His Pro Asp Met Met Arg Leu Ala Cys Ala Asp Ile  
180 185 190

Ser Ile Asn Ser Ile Tyr Gly Leu Phe Val Leu Val Ser Thr Phe Gly  
195 200 205

Met Asp Leu Phe Phe Ile Phe Leu Ser Tyr Val Leu Ile Leu Arg Ser  
210 215 220

Val Met Ala Thr Ala Ser Arg Glu Glu Arg Leu Lys Ala Leu Asn Thr  
225 230 235 240

Cys Val Ser His Ile Leu Ala Val Leu Ala Phe Tyr Val Pro Met Ile  
245 250 255

Gly Val Ser Thr Val His Arg Phe Gly Lys His Val Pro Cys Tyr Ile  
260 265 270

His Val Leu Met Ser Asn Val Tyr Leu Phe Val Pro Pro Val Leu Asn

275

280

285

Pro Leu Ile Tyr Ser Ala Lys Thr Lys Glu Ile Arg Arg Ala Ile Phe  
 290 295 300

Arg Met Phe His His Ile Lys Ile  
 305 310

&lt;210&gt; 62

&lt;211&gt; 312

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 62

Met Ser Ser Ser Ser Ser Ser His Pro Phe Leu Leu Thr Gly Phe Pro  
 1 5 10 15

Gly Leu Glu Glu Ala His His Trp Ile Ser Val Phe Phe Leu Phe Met  
 20 25 30

Tyr Ile Ser Ile Leu Phe Gly Asn Gly Thr Leu Leu Leu Leu Ile Lys  
 35 40 45

Glu Asp His Asn Leu His Glu Pro Met Tyr Phe Phe Leu Ala Met Leu  
 50 55 60

Ala Ala Thr Asp Leu Gly Leu Ala Leu Thr Thr Met Pro Thr Val Leu  
 65 70 75 80

Gly Val Leu Trp Leu Asp His Arg Glu Ile Gly Ser Ala Ala Cys Phe  
 85 90 95

Ser Gln Ala Tyr Phe Ile His Ser Leu Ser Phe Leu Glu Ser Gly Ile  
 100 105 110

Leu Leu Ala Met Ala Tyr Asp Arg Phe Ile Ala Ile Cys Asn Pro Leu  
 115 120 125

Arg Tyr Thr Ser Val Leu Thr Asn Thr Arg Val Val Lys Ile Gly Leu  
 130 135 140

Gly Val Leu Met Arg Gly Phe Val Ser Val Val Pro Pro Ile Arg Pro  
 145 150 155 160

Leu Tyr Phe Phe Leu Tyr Cys His Ser His Val Leu Ser His Ala Phe  
 165 170 175

Cys Leu His Gln Asp Val Ile Lys Leu Ala Cys Ala Asp Thr Thr Phe  
 180 185 190

Asn Arg Leu Tyr Pro Ala Val Leu Val Val Phe Ile Phe Val Leu Asp  
 195 200 205

Tyr Leu Ile Ile Phe Ile Ser Tyr Val Leu Ile Leu Lys Thr Val Leu  
 210 215 220

Ser Ile Ala Ser Arg Glu Glu Arg Ala Lys Ala Leu Ile Thr Cys Val  
 225 230 235 240

Ser His Ile Cys Cys Val Leu Val Phe Tyr Val Thr Val Ile Gly Leu  
 245 250 255

Ser Leu Ile His Arg Phe Gly Lys Gln Val Pro His Ile Val His Leu  
260 265 270

Ile Met Ser Tyr Ala Tyr Phe Leu Phe Pro Pro Leu Met Asn Pro Ile  
275 280 285

Thr Tyr Ser Val Lys Thr Lys Gln Ile Gln Asn Ala Ile Leu His Leu  
290 295 300

Phe Thr Thr His Arg Ile Gly Thr  
305 310

<210> 63  
<211> 318  
<212> PRT  
<213> Mus musculus

<220>  
<221> VARIANT  
<222> (286)  
<223> Wherein Xaa is any amino acid.

<400> 63  
Met Ser Pro Gly Asn Ser Ser Trp Ile His Pro Ser Ser Phe Leu Leu  
1 5 10 15

Leu Gly Ile Pro Gly Leu Glu Glu Leu Gln Phe Trp Leu Gly Leu Pro  
20 25 30

Phe Gly Thr Val Tyr Leu Ile Ala Val Leu Gly Asn Val Ile Ile Leu  
35 40 45

Phe Val Ile Tyr Leu Glu His Ser Leu His Gln Pro Met Phe Tyr Leu  
50 55 60

Leu Ala Ile Leu Ala Val Thr Asp Leu Gly Leu Ser Thr Ala Thr Val  
65 70 75 80

Pro Arg Ala Leu Gly Ile Phe Trp Phe Gly Phe His Lys Ile Ala Phe  
85 90 95

Arg Asp Cys Val Ala Gln Met Phe Phe Ile His Leu Phe Thr Gly Ile  
100 105 110

Glu Thr Phe Met Leu Val Ala Met Ala Phe Asp Arg Tyr Ile Ala Ile  
115 120 125

Cys Asn Pro Leu Arg Tyr Asn Thr Ile Leu Thr Asn Arg Thr Ile Cys  
130 135 140

Ile Ile Val Gly Val Gly Leu Phe Lys Asn Phe Ile Leu Val Phe Pro  
145 150 155 160

Leu Ile Phe Leu Ile Leu Arg Leu Ser Phe Cys Gly His Asn Ile Ile  
165 170 175

Pro His Thr Tyr Cys Glu His Met Gly Ile Ala Arg Leu Ala Cys Val  
180 185 190

Ser Ile Lys Val Asn Val Leu Phe Gly Leu Ile Leu Ile Ser Met Ile  
195 200 205



Leu Leu Asp Val Val Leu Ser Ala Leu Ser Tyr Ala Lys Ile Leu His  
 210 215 220  
 Ala Val Phe Lys Leu Pro Ser Trp Glu Ala Arg Leu Lys Ala Leu Asn  
 225 230 235 240  
 Thr Cys Gly Ser His Val Cys Val Ile Leu Ala Phe Phe Thr Pro Ala  
 245 250 255  
 Phe Phe Ser Phe Leu Thr His Arg Phe Gly His Asn Ile Pro Arg Tyr  
 260 265 270  
 Ile His Ile Leu Leu Ala Asn Leu Tyr Val Ile Ile Pro Xaa Ala Leu  
 275 280 285  
 Asn Pro Ile Ile Tyr Gly Val Arg Thr Lys Gln Ile Gln Asp Arg Ala  
 290 295 300  
 Val Thr Ile Leu Cys Asn Glu Val Gly Gln Leu Ala Asp Asp  
 305 310 315

<210> 64  
 <211> 320  
 <212> PRT  
 <213> Rattus norvegicus

<400> 64  
 Met Ser Ser Cys Asn Phe Thr His Ala Thr Phe Met Leu Ile Gly Ile  
 1 5 10 15  
 Pro Gly Leu Glu Glu Ala His Phe Trp Phe Gly Phe Pro Leu Leu Ser  
 20 25 30  
 Met Tyr Ala Val Ala Leu Phe Gly Asn Cys Ile Val Val Phe Ile Val  
 35 40 45  
 Arg Thr Glu Arg Ser Leu His Ala Pro Met Tyr Leu Phe Leu Cys Met  
 50 55 60  
 Leu Ala Ala Ile Asp Leu Ala Leu Ser Thr Ser Thr Met Pro Lys Ile  
 65 70 75 80  
 Leu Ala Leu Phe Trp Phe Asp Ser Arg Glu Ile Thr Phe Asp Ala Cys  
 85 90 95  
 Leu Ala Gln Met Phe Phe Ile His Ala Leu Ser Ala Ile Glu Ser Thr  
 100 105 110  
 Ile Leu Leu Ala Met Ala Phe Asp Arg Tyr Val Ala Ile Cys His Pro  
 115 120 125  
 Leu Arg His Ala Ala Val Leu Asn Asn Thr Val Thr Val Gln Ile Gly  
 130 135 140  
 Met Val Ala Leu Val Arg Gly Ser Leu Phe Phe Phe Pro Leu Pro Leu  
 145 150 155 160  
 Leu Ile Lys Arg Leu Ala Phe Cys His Ser Asn Val Leu Ser His Ser  
 165 170 175  
 Tyr Cys Val His Gln Asp Val Met Lys Leu Ala Tyr Thr Asp Thr Leu  
 180 185 190

Pro Asn Val Val Tyr Gly Leu Thr Ala Ile Leu Leu Val Met Gly Val  
 195 200 205  
 Asp Val Met Phe Ile Ser Leu Ser Tyr Phe Leu Ile Ile Arg Ala Val  
 210 215 220  
 Leu Gln Leu Pro Ser Lys Ser Glu Arg Ala Lys Ala Phe Gly Thr Cys  
 225 230 235 240  
 Val Ser His Ile Gly Val Val Leu Ala Phe Tyr Val Pro Leu Ile Gly  
 245 250 255  
 Leu Ser Val Val His Arg Phe Gly Asn Ser Leu Asp Pro Ile Val His  
 260 265 270  
 Val Leu Met Gly Asp Val Tyr Leu Leu Leu Pro Pro Val Ile Asn Pro  
 275 280 285  
 Ile Ile Tyr Gly Ala Lys Thr Lys Gln Ile Arg Thr Arg Val Leu Ala  
 290 295 300  
 Met Phe Lys Ile Ser Cys Asp Lys Asp Ile Glu Ala Gly Gly Asn Thr  
 305 310 315 320

<210> 65  
 <211> 320  
 <212> PRT  
 <213> Homo sapiens

<400> 65  
 Met Ser Ser Cys Asn Phe Thr His Ala Thr Phe Val Leu Ile Gly Ile  
 1 5 10 15  
 Pro Gly Leu Glu Lys Ala His Phe Trp Val Gly Phe Pro Leu Leu Ser  
 20 25 30  
 Met Tyr Val Val Ala Met Phe Gly Asn Cys Ile Val Val Phe Ile Val  
 35 40 45  
 Arg Thr Glu Arg Ser Leu His Ala Pro Met Tyr Leu Phe Leu Cys Met  
 50 55 60  
 Leu Ala Ala Ile Asp Leu Ala Leu Ser Thr Ser Thr Met Pro Lys Ile  
 65 70 75 80  
 Leu Ala Leu Phe Trp Phe Asp Ser Arg Glu Ile Ser Phe Glu Ala Cys  
 85 90 95  
 Leu Thr Gln Met Phe Phe Ile His Ala Leu Ser Ala Ile Glu Ser Thr  
 100 105 110  
 Ile Leu Leu Ala Met Ala Phe Asp Arg Tyr Val Ala Ile Cys His Pro  
 115 120 125  
 Leu Arg His Ala Ala Val Leu Asn Asn Thr Val Thr Ala Gln Ile Gly  
 130 135 140  
 Ile Val Ala Val Val Arg Gly Ser Leu Phe Phe Phe Pro Leu Pro Leu  
 58

|                 |   |     |     |     |     |     |
|-----------------|---|-----|-----|-----|-----|-----|
| 145             |   | 150 |     | 155 |     | 160 |
| Leu Ile Lys Arg | Leu Ala Phe Cys His Ser Asn Val Leu Ser His Ser |     |     |     |     |     |
|                 | 165   |     | 170 |     | 175 |     |
| Tyr Cys Val His | Gln Asp Val Met Lys Leu Ala Tyr Ala Asp Thr Leu |     |     |     |     |     |
|                 | 180   |     | 185 |     | 190 |     |
| Pro Asn Val Val | Tyr Gly Leu Thr Ala Ile Leu Leu Val Met Gly Val |     |     |     |     |     |
|                 | 195   |     | 200 |     | 205 |     |
| Asp Val Met Phe | Ile Ser Leu Ser Tyr Phe Leu Ile Ile Arg Thr Val |     |     |     |     |     |
|                 | 210   |     | 215 |     | 220 |     |
| Leu Gln Leu Pro | Ser Lys Ser Glu Arg Ala Lys Ala Phe Gly Thr Cys |     |     |     |     |     |
|                 | 225   |     | 230 |     | 235 | 240 |
| Val Ser His Ile | Gly Val Val Leu Ala Phe Tyr Val Pro Leu Ile Gly |     |     |     |     |     |
|                 | 245   |     | 250 |     | 255 |     |
| Leu Ser Val Val | His Arg Phe Gly Asn Ser Leu His Pro Ile Val Arg |     |     |     |     |     |
|                 | 260   |     | 265 |     | 270 |     |
| Val Val Met Gly | Asp Ile Tyr Leu Leu Leu Pro Pro Val Ile Asn Pro |     |     |     |     |     |
|                 | 275   |     | 280 |     | 285 |     |
| Ile Ile Tyr Gly | Ala Lys Thr Lys Gln Ile Arg Thr Arg Val Leu Ala |     |     |     |     |     |
|                 | 290   |     | 295 |     | 300 |     |
| Met Phe Lys Ile | Ser Cys Asp Lys Asp Leu Gln Ala Val Gly Gly Lys |     |     |     |     |     |
|                 | 305   |     | 310 |     | 315 | 320 |

<210> 66  
 <211> 316  
 <212> PRT  
 <213> Homo sapiens

<400> 66  
 Met Pro Thr Phe Asn Gly Ser Val Phe Met Pro Ser Ala Phe Ile Leu  
 1 5 10 15  
 Ile Gly Ile Pro Gly Leu Glu Ser Val Gln Cys Trp Ile Gly Ile Pro  
 20 25 30  
 Phe Ser Ala Met Tyr Leu Ile Gly Val Ile Gly Asn Ser Leu Ile Leu  
 35 40 45  
 Val Ile Ile Lys Tyr Glu Asn Ser Leu His Ile Pro Met Tyr Ile Phe  
 50 55 60  
 Leu Ala Met Leu Ala Ala Thr Asp Ile Ala Leu Asn Thr Cys Ile Leu  
 65 70 75 80  
 Pro Lys Met Leu Gly Ile Phe Trp Phe His Leu Pro Glu Ile Ser Phe  
 85 90 95  
 Asp Ala Cys Leu Phe Gln Met Trp Leu Ile His Ser Phe Gln Ala Ile  
 100 105 110

Glu Ser Gly Ile Leu Leu Ala Met Ala Leu Asp Arg Tyr Val Ala Ile  
 115 120 125  
 Cys Ile Pro Leu Arg His Ala Thr Ile Phe Ser Gln Gln Phe Leu Thr  
 130 135 140  
 His Ile Gly Leu Gly Val Thr Leu Arg Ala Ala Ile Leu Ile Ile Pro  
 145 150 155 160  
 Ser Leu Gly Leu Ile Lys Cys Cys Leu Lys His Tyr Arg Thr Thr Val  
 165 170 175  
 Ile Ser His Ser Tyr Cys Glu His Met Ala Ile Val Lys Leu Ala Thr  
 180 185 190  
 Glu Asp Ile Arg Val Asn Lys Ile Tyr Gly Leu Phe Val Ala Phe Ala  
 195 200 205  
 Ile Leu Gly Phe Asp Ile Ile Phe Ile Thr Leu Ser Tyr Val Gln Ile  
 210 215 220  
 Phe Ile Thr Val Phe Gln Leu Pro Gln Lys Glu Ala Arg Phe Lys Ala  
 225 230 235 240  
 Phe Asn Thr Cys Ile Ala His Ile Cys Val Phe Leu Gln Phe Tyr Leu  
 245 250 255  
 Leu Ala Phe Phe Ser Phe Phe Thr His Arg Phe Gly Ser His Ile Pro  
 260 265 270  
 Pro Tyr Ile His Ile Leu Leu Ser Asn Leu Tyr Leu Leu Val Pro Pro  
 275 280 285  
 Phe Leu Asn Pro Ile Val Tyr Gly Val Lys Thr Lys Gln Ile Arg Asp  
 290 295 300  
 His Ile Val Lys Val Phe Phe Phe Lys Lys Val Thr  
 305 310 315

<210> 67  
 <211> 316  
 <212> PRT  
 <213> Mus musculus

<400> 67  
 Met Pro His Leu Asn Ser Thr Ile Phe Arg Pro Ser Val Leu Thr Leu  
 1 5 10 15  
 Thr Gly Ile Pro Gly Leu Glu Ser Val Gln Phe Trp Ile Gly Ile Pro  
 20 25 30  
 Phe Cys Ile Met Tyr Ile Ile Ala Leu Leu Gly Asn Ser Leu Leu Leu  
 35 40 45  
 Val Val Ile Lys Val Glu Arg Ser Leu His Glu Pro Met Tyr Leu Phe  
 50 55 60  
 Leu Ala Met Leu Gly Ala Thr Asp Ile Ser Leu Ser Thr Ser Ile Leu  
 65 70 75 80  
 Pro Lys Met Leu Gly Ile Phe Trp Phe His Leu Ser Thr Ile Tyr Phe  
 85 90 95  
 60

Asp Ala Cys Leu Leu Gln Met Trp Leu Ile His Thr Phe Gln Gly Ile  
 100 105 110  
 Glu Ser Gly Ile Leu Phe Ala Met Ala Met Asp Arg Tyr Val Ala Ile  
 115 120 125  
 Cys Asp Pro Leu Arg His Ala Ser Ile Phe Thr Gln Arg Leu Leu Thr  
 130 135 140  
 Gln Ile Gly Val Gly Val Thr Leu Arg Ala Ala Leu Phe Val Ala Pro  
 145 150 155 160  
 Cys Leu Phe Leu Ile Lys Cys Arg Leu Lys Phe Tyr Trp Thr Thr Val  
 165 170 175  
 Val Ser His Ser Tyr Cys Glu His Met Ala Ile Val Lys Leu Ala Ala  
 180 185 190  
 Glu Asp Val His Val Asn Lys Ile Tyr Gly Leu Phe Val Ala Phe Ser  
 195 200 205  
 Ile Leu Gly Leu Asp Ile Ile Phe Ile Thr Leu Ser Tyr Ile Arg Ile  
 210 215 220  
 Phe Ile Thr Val Phe Lys Leu Pro Gln Lys Glu Ala Arg Leu Lys Ala  
 225 230 235 240  
 Phe Asn Thr Cys Val Ala His Ile Cys Val Phe Leu Glu Phe Tyr Leu  
 245 250 255  
 Leu Ala Phe Phe Ser Phe Phe Thr His Arg Phe Gly Tyr His Val Pro  
 260 265 270  
 Ser Tyr Ile His Ile Leu Leu Ser Asn Leu Tyr Leu Leu Val Pro Pro  
 275 280 285  
 Leu Leu Asn Pro Ile Val Tyr Gly Val Lys Thr Lys Gln Ile Arg Asp  
 290 295 300  
 Gln Val Ser Lys Ile Leu Tyr Cys Asn Tyr Ser Tyr  
 305 310 315

<210> 68  
 <211> 315  
 <212> PRT  
 <213> Mus musculus

<400> 68  
 Met Ile Lys Phe Asn Gly Ser Val Phe Met Pro Ser Val Leu Thr Leu  
 1 5 10 15  
 Val Gly Ile Pro Gly Leu Glu Ser Val Gln Cys Trp Ile Gly Ile Pro  
 20 25 30  
 Phe Cys Val Met Tyr Ile Ile Ala Met Ile Gly Asn Ser Leu Ile Leu  
 35 40 45  
 Val Ile Ile Lys Ser Glu Lys Ser Leu His Ile Pro Met Tyr Ile Phe  
 50 55 60  
 Leu Ala Ile Leu Ala Val Thr Asp Ile Ala Leu Ser Thr Cys Ile Leu  
 61

| 65  | 70  | 75  | 80  |
|---|-----|-----|-----|
| Pro Lys Met Leu Gly Ile Phe Trp Phe His Met Pro Gln Ile Ser Phe | 85  | 90  | 95  |
| Asp Ala Cys Leu Leu Gln Met Glu Ile His Ser Phe Gln Ala Thr     | 100 | 105 | 110 |
| Glu Ser Gly Ile Leu Leu Ala Met Ala Leu Asp Arg Tyr Val Ala Ile | 115 | 120 | 125 |
| Cys Asn Pro Leu Arg His Ala Thr Ile Phe Ser Pro Gln Leu Thr Thr | 130 | 135 | 140 |
| Cys Leu Gly Ala Gly Ala Leu Leu Arg Ala Phe Ile Leu Val Ser Pro | 145 | 150 | 155 |
| Ser Ile Leu Leu Ile Lys Cys Arg Leu Lys Tyr Phe Arg Thr Thr Ile | 165 | 170 | 175 |
| Ile Ser His Ser Tyr Cys Glu His Met Ala Ile Val Lys Leu Ala Ala | 180 | 185 | 190 |
| Gln Asp Ile Arg Ile Asn Lys Ile Cys Gly Leu Leu Val Ala Phe Ala | 195 | 200 | 205 |
| Ile Leu Gly Phe Asp Ile Val Phe Ile Thr Phe Ser Tyr Val Arg Ile | 210 | 215 | 220 |
| Phe Ile Thr Val Phe Gln Leu Pro Gln Lys Glu Ala Arg Phe Lys Ala | 225 | 230 | 235 |
| Phe Asn Thr Cys Ile Ala His Ile Cys Val Phe Leu Gln Phe Tyr Leu | 245 | 250 | 255 |
| Leu Ala Phe Phe Ser Phe Phe Thr His Arg Phe Gly Ala His Ile Pro | 260 | 265 | 270 |
| Pro Tyr Val His Ile Leu Leu Ser Asp Leu Tyr Leu Leu Val Pro Pro | 275 | 280 | 285 |
| Phe Leu Asn Pro Ile Val Tyr Gly Val Lys Thr Lys Gln Ile Arg Asp | 290 | 295 | 300 |
| Gln Val Leu Lys Met Leu Phe Ser Lys Lys His                     | 305 | 310 | 315 |

<210> 69

<211> 316

<212> PRT

<213> Mus musculus

<400> 69

|   |   |   |    |    |
|---|---|---|----|----|
| Met Ile Lys Phe Asn Gly Ser Val Phe Met Pro Ser Val Leu Thr Leu | 1 | 5 | 10 | 15 |
|---|---|---|----|----|

|   |    |    |    |
|---|----|----|----|
| Val Gly Ile Pro Gly Leu Glu Ser Val Gln Cys Trp Ile Gly Ile Pro | 20 | 25 | 30 |
|---|----|----|----|

|   |    |    |    |
|---|----|----|----|
| Phe Cys Val Met Tyr Ile Ile Ala Met Ile Gly Asn Ser Leu Ile Leu | 35 | 40 | 45 |
|---|----|----|----|

Val Ile Ile Lys Ser Glu Lys Ser Leu His Ile Pro Met Tyr Ile Phe  
 50 55 60  
 Leu Ala Ile Leu Ala Val Thr Asp Ile Ala Leu Ser Thr Cys Ile Leu  
 65 70 75 80  
 Pro Lys Met Leu Gly Ile Phe Trp Phe His Met Pro Gln Ile Ser Phe  
 85 90 95  
 Asp Ala Cys Leu Leu Gln Met Glu Leu Ile His Ser Phe Gln Ala Thr  
 100 105 110  
 Glu Ser Gly Ile Leu Leu Ala Met Ala Leu Asp Arg Tyr Val Ala Ile  
 115 120 125  
 Cys Asn Pro Leu Arg His Ala Thr Ile Phe Ser Pro Gln Leu Thr Thr  
 130 135 140  
 Cys Leu Gly Ala Gly Ala Leu Leu Arg Ser Leu Ile Thr Thr Phe Pro  
 145 150 155 160  
 Leu Ile Leu Leu Ile Lys Phe Cys Leu Lys Tyr Phe Arg Thr Thr Ile  
 165 170 175  
 Ile Ser His Ser Tyr Cys Glu His Met Ala Ile Val Lys Leu Ala Ala  
 180 185 190  
 Gln Asp Ile Arg Ile Asn Lys Ile Cys Gly Leu Leu Val Ala Phe Ala  
 195 200 205  
 Ile Leu Gly Phe Asp Ile Val Phe Ile Thr Phe Ser Tyr Val Arg Ile  
 210 215 220  
 Phe Ile Thr Val Phe Gln Leu Pro Gln Lys Glu Ala Arg Phe Lys Ala  
 225 230 235 240  
 Phe Asn Thr Cys Ile Ala His Ile Cys Val Phe Leu Gln Phe Tyr Leu  
 245 250 255  
 Leu Ala Phe Phe Ser Phe Phe Thr His Arg Phe Gly Ala His Ile Pro  
 260 265 270  
 Pro Tyr Val His Ile Leu Leu Ser Asp Leu Tyr Leu Leu Val Pro Pro  
 275 280 285  
 Phe Leu Asn Pro Ile Val Tyr Gly Ile Lys Thr Lys Gln Ile Arg Asp  
 290 295 300  
 Gln Val Leu Lys Met Phe Phe Ser Lys Lys Pro Leu  
 305 310 315

<210> 70

<211> 319

<212> PRT

<213> Gallus gallus

<400> 70

Met Tyr Pro Arg Asn Ser Ser Gln Ala Gln Pro Phe Leu Leu Ala Gly  
 1 5 10 15

Leu Pro Gly Met Ala Gln Phe His His Trp Val Phe Leu Pro Phe Gly  
 20 25 30

Leu Met Tyr Leu Val Ala Val Leu Gly Asn Gly Thr Ile Leu Leu Val  
 35 40 45  
 Val Arg Val His Arg Gln Leu His Gln Pro Met Tyr Tyr Phe Leu Leu  
 50 55 60  
 Met Leu Ala Thr Thr Asp Leu Gly Leu Thr Leu Ser Thr Leu Pro Thr  
 65 70 75 80  
 Val Leu Arg Val Phe Trp Leu Gly Ala Met Glu Ile Ser Phe Pro Ala  
 85 90 95  
 Cys Leu Ile Gln Met Phe Cys Ile His Val Phe Ser Phe Met Glu Ser  
 100 105 110  
 Ser Val Leu Leu Ala Met Ala Phe Asp Arg Tyr Val Ala Ile Cys Cys  
 115 120 125  
 Pro Leu Arg Tyr Ser Ser Ile Leu Thr Gly Ala Arg Val Ala Gln Ile  
 130 135 140  
 Gly Leu Gly Ile Ile Cys Arg Cys Thr Leu Ser Leu Leu Pro Leu Ile  
 145 150 155 160  
 Cys Leu Leu Thr Trp Leu Pro Phe Cys Arg Ser His Val Leu Ser His  
 165 170 175  
 Pro Tyr Cys Leu His Gln Asp Ile Ile Arg Leu Ala Cys Thr Asp Ala  
 180 185 190  
 Thr Leu Asn Ser Leu Tyr Gly Leu Ile Leu Val Leu Val Ala Ile Leu  
 195 200 205  
 Asp Phe Val Leu Ile Ala Leu Ser Tyr Ile Met Ile Phe Arg Thr Val  
 210 215 220  
 Leu Gly Ile Thr Ser Lys Glu Glu Gln Thr Lys Ala Leu Asn Thr Cys  
 225 230 235 240  
 Val Ser His Phe Cys Ala Val Leu Ile Phe Tyr Ile Pro Leu Ala Gly  
 245 250 255  
 Leu Ser Ile Ile His Arg Tyr Gly Arg Asn Ala Pro Pro Ile Ser His  
 260 265 270  
 Ala Val Met Ala Asn Val Tyr Leu Phe Val Pro Pro Ile Leu Asn Pro  
 275 280 285  
 Val Leu Tyr Ser Met Lys Ser Lys Ala Ile Cys Lys Gly Leu Leu Arg  
 290 295 300  
 Leu Leu Cys Gln Arg Ala Ala Trp Pro Gly His Ala Gln Asn Cys  
 305 310 315

<210> 71

<211> 254

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:pfam00001



7tm\_1, 7 transmembrane receptor (rhodopsin family)

<400> 71

```

Gly Asn Leu Leu Val Ile Leu Val Ile Leu Arg Thr Lys Lys Leu Arg
 1           5           10           15
Thr Pro Thr Asn Ile Phe Leu Leu Asn Leu Ala Val Ala Asp Leu Leu
          20           25           30
Phe Leu Leu Thr Leu Pro Pro Trp Ala Leu Tyr Tyr Leu Val Gly Gly
          35           40           45
Asp Trp Val Phe Gly Asp Ala Leu Cys Lys Leu Val Gly Ala Leu Phe
          50           55           60
Val Val Asn Gly Tyr Ala Ser Ile Leu Leu Leu Thr Ala Ile Ser Ile
          65           70           75           80
Asp Arg Tyr Leu Ala Ile Val His Pro Leu Arg Tyr Arg Arg Ile Arg
          85           90           95
Thr Pro Arg Arg Ala Lys Val Leu Ile Leu Leu Val Trp Val Leu Ala
          100          105          110
Leu Leu Leu Ser Leu Pro Pro Leu Leu Phe Ser Trp Leu Arg Thr Val
          115          120          125
Glu Glu Gly Asn Thr Thr Val Cys Leu Ile Asp Phe Pro Glu Glu Ser
          130          135          140
Val Lys Arg Ser Tyr Val Leu Leu Ser Thr Leu Val Gly Phe Leu Leu
          145          150          155          160
Pro Leu Leu Val Ile Leu Val Cys Tyr Thr Arg Ile Leu Arg Thr Leu
          165          170          175
Arg Lys Ser Ala Arg Ser Gln Arg Ser Leu Lys Arg Arg Ser Ser Ser
          180          185          190
Glu Arg Lys Ala Ala Lys Met Leu Leu Val Val Val Val Val Phe Val
          195          200          205
Leu Cys Trp Leu Pro Tyr His Ile Val Leu Leu Leu Asp Ser Leu Cys
          210          215          220
Leu Leu Ser Ile Trp Arg Val Leu Pro Thr Ala Leu Leu Ile Thr Leu
          225          230          235          240
Trp Leu Ala Tyr Val Asn Ser Cys Leu Asn Pro Ile Ile Tyr
          245          250

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<210> 72

<211> 254

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:pfam00001

7tm\_1, 7 transmembrane receptor (rhodopsin family)

<400> 72

Gly Asn Leu Leu Val Ile Leu Val Ile Leu Arg Thr Lys Lys Leu Arg

|   |     |     |     |
|---|-----|-----|-----|
| 1   | 5   | 10  | 15  |
| Thr Pro Thr Asn Ile Phe Leu Leu Asn Leu Ala Val Ala Asp Leu Leu | 20  | 25  | 30  |
| Phe Leu Leu Thr Leu Pro Pro Trp Ala Leu Tyr Tyr Leu Val Gly Gly | 35  | 40  | 45  |
| Asp Trp Val Phe Gly Asp Ala Leu Cys Lys Leu Val Gly Ala Leu Phe | 50  | 55  | 60  |
| Val Val Asn Gly Tyr Ala Ser Ile Leu Leu Leu Thr Ala Ile Ser Ile | 65  | 70  | 75  |
| Asp Arg Tyr Leu Ala Ile Val His Pro Leu Arg Tyr Arg Arg Ile Arg | 85  | 90  | 95  |
| Thr Pro Arg Arg Ala Lys Val Leu Ile Leu Leu Val Trp Val Leu Ala | 100 | 105 | 110 |
| Leu Leu Leu Ser Leu Pro Pro Leu Leu Phe Ser Trp Leu Arg Thr Val | 115 | 120 | 125 |
| Glu Glu Gly Asn Thr Thr Val Cys Leu Ile Asp Phe Pro Glu Glu Ser | 130 | 135 | 140 |
| Val Lys Arg Ser Tyr Val Leu Leu Ser Thr Leu Val Gly Phe Leu Leu | 145 | 150 | 155 |
| Pro Leu Leu Val Ile Leu Val Cys Tyr Thr Arg Ile Leu Arg Thr Leu | 165 | 170 | 175 |
| Arg Lys Ser Ala Arg Ser Gln Arg Ser Leu Lys Arg Arg Ser Ser Ser | 180 | 185 | 190 |
| Glu Arg Lys Ala Ala Lys Met Leu Leu Val Val Val Val Val Phe Val | 195 | 200 | 205 |
| Leu Cys Trp Leu Pro Tyr His Ile Val Leu Leu Leu Asp Ser Leu Cys | 210 | 215 | 220 |
| Leu Leu Ser Ile Trp Arg Val Leu Pro Thr Ala Leu Leu Ile Thr Leu | 225 | 230 | 235 |
| Trp Leu Ala Tyr Val Asn Ser Cys Leu Asn Pro Ile Ile Tyr         | 245 | 250 |     |

<210> 73

<211> 254

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:pfam00001

7tm\_1, 7 transmembrane receptor (rhodopsin family)

<400> 73

|   |   |   |    |    |
|---|---|---|----|----|
| Gly Asn Leu Leu Val Ile Leu Val Ile Leu Arg Thr Lys Lys Leu Arg | 1 | 5 | 10 | 15 |
|---|---|---|----|----|

|   |    |    |    |
|---|----|----|----|
| Thr Pro Thr Asn Ile Phe Leu Leu Asn Leu Ala Val Ala Asp Leu Leu | 20 | 25 | 30 |
|---|----|----|----|

Phe Leu Leu Thr Leu Pro Pro Trp Ala Leu Tyr Tyr Leu Val Gly Gly  
           35                          40                          45  
 Asp Trp Val Phe Gly Asp Ala Leu Cys Lys Leu Val Gly Ala Leu Phe  
           50                          55                          60  
 Val Val Asn Gly Tyr Ala Ser Ile Leu Leu Leu Thr Ala Ile Ser Ile  
           65                          70                          75                          80  
 Asp Arg Tyr Leu Ala Ile Val His Pro Leu Arg Tyr Arg Arg Ile Arg  
                           85                          90                          95  
 Thr Pro Arg Arg Ala Lys Val Leu Ile Leu Leu Val Trp Val Leu Ala  
                           100                          105                          110  
 Leu Leu Leu Ser Leu Pro Pro Leu Leu Phe Ser Trp Leu Arg Thr Val  
                           115                          120                          125  
 Glu Glu Gly Asn Thr Thr Val Cys Leu Ile Asp Phe Pro Glu Glu Ser  
           130                          135                          140  
 Val Lys Arg Ser Tyr Val Leu Leu Ser Thr Leu Val Gly Phe Leu Leu  
           145                          150                          155                          160  
 Pro Leu Leu Val Ile Leu Val Cys Tyr Thr Arg Ile Leu Arg Thr Leu  
                           165                          170                          175  
 Arg Lys Ser Ala Arg Ser Gln Arg Ser Leu Lys Arg Arg Ser Ser Ser  
                           180                          185                          190  
 Glu Arg Lys Ala Ala Lys Met Leu Leu Val Val Val Val Val Phe Val  
           195                          200                          205  
 Leu Cys Trp Leu Pro Tyr His Ile Val Leu Leu Leu Asp Ser Leu Cys  
           210                          215                          220  
 Leu Leu Ser Ile Trp Arg Val Leu Pro Thr Ala Leu Leu Ile Thr Leu  
           225                          230                          235                          240  
 Trp Leu Ala Tyr Val Asn Ser Cys Leu Asn Pro Ile Ile Tyr  
                           245                          250

<210> 74

<211> 254

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:pfam00001

7tm\_1, 7 transmembrane receptor (rhodopsin family)

<400> 74

Gly Asn Leu Leu Val Ile Leu Val Ile Leu Arg Thr Lys Lys Leu Arg  
       1                          5                          10                          15

Thr Pro Thr Asn Ile Phe Leu Leu Asn Leu Ala Val Ala Asp Leu Leu  
           20                          25                          30

Phe Leu Leu Thr Leu Pro Pro Trp Ala Leu Tyr Tyr Leu Val Gly Gly  
           35                          40                          45

Asp Trp Val Phe Gly Asp Ala Leu Cys Lys Leu Val Gly Ala Leu Phe  
 50 55 60  
 Val Val Asn Gly Tyr Ala Ser Ile Leu Leu Leu Thr Ala Ile Ser Ile  
 65 70 75 80  
 Asp Arg Tyr Leu Ala Ile Val His Pro Leu Arg Tyr Arg Arg Ile Arg  
 85 90 95  
 Thr Pro Arg Arg Ala Lys Val Leu Ile Leu Leu Val Trp Val Leu Ala  
 100 105 110  
 Leu Leu Leu Ser Leu Pro Pro Leu Leu Phe Ser Trp Leu Arg Thr Val  
 115 120 125  
 Glu Glu Gly Asn Thr Thr Val Cys Leu Ile Asp Phe Pro Glu Glu Ser  
 130 135 140  
 Val Lys Arg Ser Tyr Val Leu Leu Ser Thr Leu Val Gly Phe Leu Leu  
 145 150 155 160  
 Pro Leu Leu Val Ile Leu Val Cys Tyr Thr Arg Ile Leu Arg Thr Leu  
 165 170 175  
 Arg Lys Ser Ala Arg Ser Gln Arg Ser Leu Lys Arg Arg Ser Ser Ser  
 180 185 190  
 Glu Arg Lys Ala Ala Lys Met Leu Leu Val Val Val Val Val Phe Val  
 195 200 205  
 Leu Cys Trp Leu Pro Tyr His Ile Val Leu Leu Leu Asp Ser Leu Cys  
 210 215 220  
 Leu Leu Ser Ile Trp Arg Val Leu Pro Thr Ala Leu Leu Ile Thr Leu  
 225 230 235 240  
 Trp Leu Ala Tyr Val Asn Ser Cys Leu Asn Pro Ile Ile Tyr  
 245 250

<210> 75

<211> 254

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:pfam00001  
 7tm\_1, 7 transmembrane receptor (rhodopsin family)

<400> 75

Gly Asn Leu Leu Val Ile Leu Val Ile Leu Arg Thr Lys Lys Leu Arg  
 1 5 10 15

Thr Pro Thr Asn Ile Phe Leu Leu Asn Leu Ala Val Ala Asp Leu Leu  
 20 25 30

Phe Leu Leu Thr Leu Pro Pro Trp Ala Leu Tyr Tyr Leu Val Gly Gly  
 35 40 45

Asp Trp Val Phe Gly Asp Ala Leu Cys Lys Leu Val Gly Ala Leu Phe  
 50 55 60

Val Val Asn Gly Tyr Ala Ser Ile Leu Leu Leu Thr Ala Ile Ser Ile  
 68

65

70

75

80

Asp Arg Tyr Leu Ala Ile Val His Pro Leu Arg Tyr Arg Arg Ile Arg  
85 90 95

Thr Pro Arg Arg Ala Lys Val Leu Ile Leu Leu Val Trp Val Leu Ala  
100 105 110

Leu Leu Leu Ser Leu Pro Pro Leu Leu Phe Ser Trp Leu Arg Thr Val  
115 120 125

Glu Glu Gly Asn Thr Thr Val Cys Leu Ile Asp Phe Pro Glu Glu Ser  
130 135 140

Val Lys Arg Ser Tyr Val Leu Leu Ser Thr Leu Val Gly Phe Leu Leu  
145 150 155 160

Pro Leu Leu Val Ile Leu Val Cys Tyr Thr Arg Ile Leu Arg Thr Leu  
165 170 175

Arg Lys Ser Ala Arg Ser Gln Arg Ser Leu Lys Arg Arg Ser Ser Ser  
180 185 190

Glu Arg Lys Ala Ala Lys Met Leu Leu Val Val Val Val Val Phe Val  
195 200 205

Leu Cys Trp Leu Pro Tyr His Ile Val Leu Leu Leu Asp Ser Leu Cys  
210 215 220

Leu Leu Ser Ile Trp Arg Val Leu Pro Thr Ala Leu Leu Ile Thr Leu  
225 230 235 240

Trp Leu Ala Tyr Val Asn Ser Cys Leu Asn Pro Ile Ile Tyr  
245 250

<210> 76

<211> 254

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:pfam00001  
7tm\_1, 7 transmembrane receptor (rhodopsin family)

<400> 76

Gly Asn Leu Leu Val Ile Leu Val Ile Leu Arg Thr Lys Lys Leu Arg  
1 5 10 15

Thr Pro Thr Asn Ile Phe Leu Leu Asn Leu Ala Val Ala Asp Leu Leu  
20 25 30

Phe Leu Leu Thr Leu Pro Pro Trp Ala Leu Tyr Tyr Leu Val Gly Gly  
35 40 45

Asp Trp Val Phe Gly Asp Ala Leu Cys Lys Leu Val Gly Ala Leu Phe  
50 55 60

Val Val Asn Gly Tyr Ala Ser Ile Leu Leu Leu Thr Ala Ile Ser Ile  
65 70 75 80

Asp Arg Tyr Leu Ala Ile Val His Pro Leu Arg Tyr Arg Arg Ile Arg  
85 90 95

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Thr Pro Arg Arg Ala Lys Val Leu Ile Leu Leu Val Trp Val Leu Ala
      100                      105                      110

Leu Leu Leu Ser Leu Pro Pro Leu Leu Phe Ser Trp Leu Arg Thr Val
      115                      120                      125

Glu Glu Gly Asn Thr Thr Val Cys Leu Ile Asp Phe Pro Glu Glu Ser
      130                      135                      140

Val Lys Arg Ser Tyr Val Leu Leu Ser Thr Leu Val Gly Phe Leu Leu
      145                      150                      155                      160

Pro Leu Leu Val Ile Leu Val Cys Tyr Thr Arg Ile Leu Arg Thr Leu
      165                      170                      175

Arg Lys Ser Ala Arg Ser Gln Arg Ser Leu Lys Arg Arg Ser Ser Ser
      180                      185                      190

Glu Arg Lys Ala Ala Lys Met Leu Leu Val Val Val Val Val Phe Val
      195                      200                      205

Leu Cys Trp Leu Pro Tyr His Ile Val Leu Leu Leu Asp Ser Leu Cys
      210                      215                      220

Leu Leu Ser Ile Trp Arg Val Leu Pro Thr Ala Leu Leu Ile Thr Leu
      225                      230                      235                      240

Trp Leu Ala Tyr Val Asn Ser Cys Leu Asn Pro Ile Ile Tyr
      245                      250

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<210> 77

<211> 254

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:pfam00001  
7tm\_1, 7 transmembrane receptor (rhodopsin family)

<400> 77

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Gly Asn Leu Leu Val Ile Leu Val Ile Leu Arg Thr Lys Lys Leu Arg
  1                      5                      10                      15

Thr Pro Thr Asn Ile Phe Leu Leu Asn Leu Ala Val Ala Asp Leu Leu
      20                      25                      30

Phe Leu Leu Thr Leu Pro Pro Trp Ala Leu Tyr Tyr Leu Val Gly Gly
      35                      40                      45

Asp Trp Val Phe Gly Asp Ala Leu Cys Lys Leu Val Gly Ala Leu Phe
      50                      55                      60

Val Val Asn Gly Tyr Ala Ser Ile Leu Leu Leu Thr Ala Ile Ser Ile
      65                      70                      75                      80

Asp Arg Tyr Leu Ala Ile Val His Pro Leu Arg Tyr Arg Arg Ile Arg
      85                      90                      95

Thr Pro Arg Arg Ala Lys Val Leu Ile Leu Leu Val Trp Val Leu Ala
      100                      105                      110

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Leu Leu Leu Ser Leu Pro Pro Leu Leu Phe Ser Trp Leu Arg Thr Val  
 115 120 125  
 Glu Glu Gly Asn Thr Thr Val Cys Leu Ile Asp Phe Pro Glu Glu Ser  
 130 135 140  
 Val Lys Arg Ser Tyr Val Leu Leu Ser Thr Leu Val Gly Phe Leu Leu  
 145 150 155 160  
 Pro Leu Leu Val Ile Leu Val Cys Tyr Thr Arg Ile Leu Arg Thr Leu  
 165 170 175  
 Arg Lys Ser Ala Arg Ser Gln Arg Ser Leu Lys Arg Arg Ser Ser Ser  
 180 185 190  
 Glu Arg Lys Ala Ala Lys Met Leu Leu Val Val Val Val Val Phe Val  
 195 200 205  
 Leu Cys Trp Leu Pro Tyr His Ile Val Leu Leu Leu Asp Ser Leu Cys  
 210 215 220  
 Leu Leu Ser Ile Trp Arg Val Leu Pro Thr Ala Leu Leu Ile Thr Leu  
 225 230 235 240  
 Trp Leu Ala Tyr Val Asn Ser Cys Leu Asn Pro Ile Ile Tyr  
 245 250

<210> 78

<211> 254

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:pfam00001  
 7tm\_1, 7 transmembrane receptor (rhodopsin family)

<400> 78

Gly Asn Leu Leu Val Ile Leu Val Ile Leu Arg Thr Lys Lys Leu Arg  
 1 5 10 15  
 Thr Pro Thr Asn Ile Phe Leu Leu Asn Leu Ala Val Ala Asp Leu Leu  
 20 25 30  
 Phe Leu Leu Thr Leu Pro Pro Trp Ala Leu Tyr Tyr Leu Val Gly Gly  
 35 40 45  
 Asp Trp Val Phe Gly Asp Ala Leu Cys Lys Leu Val Gly Ala Leu Phe  
 50 55 60  
 Val Val Asn Gly Tyr Ala Ser Ile Leu Leu Leu Thr Ala Ile Ser Ile  
 65 70 75 80  
 Asp Arg Tyr Leu Ala Ile Val His Pro Leu Arg Tyr Arg Arg Ile Arg  
 85 90 95  
 Thr Pro Arg Arg Ala Lys Val Leu Ile Leu Leu Val Trp Val Leu Ala  
 100 105 110  
 Leu Leu Leu Ser Leu Pro Pro Leu Leu Phe Ser Trp Leu Arg Thr Val  
 115 120 125  
 Glu Glu Gly Asn Thr Thr Val Cys Leu Ile Asp Phe Pro Glu Glu Ser

130                      135                      140  
 Val Lys Arg Ser Tyr Val Leu Leu Ser Thr Leu Val Gly Phe Leu Leu  
 145                      150                      155                      160  
 Pro Leu Leu Val Ile Leu Val Cys Tyr Thr Arg Ile Leu Arg Thr Leu  
                     165                      170                      175  
 Arg Lys Ser Ala Arg Ser Gln Arg Ser Leu Lys Arg Arg Ser Ser Ser  
                     180                      185                      190  
 Glu Arg Lys Ala Ala Lys Met Leu Leu Val Val Val Val Val Phe Val  
                     195                      200                      205  
 Leu Cys Trp Leu Pro Tyr His Ile Val Leu Leu Leu Asp Ser Leu Cys  
                     210                      215                      220  
 Leu Leu Ser Ile Trp Arg Val Leu Pro Thr Ala Leu Leu Ile Thr Leu  
 225                      230                      235                      240  
 Trp Leu Ala Tyr Val Asn Ser Cys Leu Asn Pro Ile Ile Tyr  
                     245                      250

<210> 79

<211> 254

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:pfam00001

7tm\_1, 7 transmembrane receptor (rhodopsin family)

<400> 79

Gly Asn Leu Leu Val Ile Leu Val Ile Leu Arg Thr Lys Lys Leu Arg  
 1                      5                      10                      15  
 Thr Pro Thr Asn Ile Phe Leu Leu Asn Leu Ala Val Ala Asp Leu Leu  
                     20                      25                      30  
 Phe Leu Leu Thr Leu Pro Pro Trp Ala Leu Tyr Tyr Leu Val Gly Gly  
                     35                      40                      45  
 Asp Trp Val Phe Gly Asp Ala Leu Cys Lys Leu Val Gly Ala Leu Phe  
                     50                      55                      60  
 Val Val Asn Gly Tyr Ala Ser Ile Leu Leu Leu Thr Ala Ile Ser Ile  
 65                      70                      75                      80  
 Asp Arg Tyr Leu Ala Ile Val His Pro Leu Arg Tyr Arg Arg Ile Arg  
                     85                      90                      95  
 Thr Pro Arg Arg Ala Lys Val Leu Ile Leu Leu Val Trp Val Leu Ala  
                     100                      105                      110  
 Leu Leu Leu Ser Leu Pro Pro Leu Leu Phe Ser Trp Leu Arg Thr Val  
                     115                      120                      125  
 Glu Glu Gly Asn Thr Thr Val Cys Leu Ile Asp Phe Pro Glu Glu Ser  
 130                      135                      140  
 Val Lys Arg Ser Tyr Val Leu Leu Ser Thr Leu Val Gly Phe Leu Leu  
 145                      150                      155                      160



Pro Leu Leu Val Ile Leu Val Cys Tyr Thr Arg Ile Leu Arg Thr Leu  
165 170 175

Arg Lys Ser Ala Arg Ser Gln Arg Ser Leu Lys Arg Arg Ser Ser Ser  
180 185 190

Glu Arg Lys Ala Ala Lys Met Leu Leu Val Val Val Val Val Phe Val  
195 200 205

Leu Cys Trp Leu Pro Tyr His Ile Val Leu Leu Leu Asp Ser Leu Cys  
210 215 220

Leu Leu Ser Ile Trp Arg Val Leu Pro Thr Ala Leu Leu Ile Thr Leu  
225 230 235 240

Trp Leu Ala Tyr Val Asn Ser Cys Leu Asn Pro Ile Ile Tyr  
245 250

<210> 80  
<211> 981  
<212> DNA  
<213> Homo sapiens

<400> 80  
tgatgctggg tccagcttat aaccacacaa tggaaacccc tgcctccttc ctccttgtgg 60  
gtatcccagg actgcaatct tcacatcttt ggctggctat ctactgagt gccatgtaca 120  
tcatagccct gtaggaaac accctcatcg tgactgcaat ctggatggat tccactcggc 180  
atgagcccat gtattgcttt ctgtgtgttc tggctgctgt ggacattggt atggcctcct 240  
ccgtgggtacc caagatgggt agcatcttct gctcgggaga cagctccatc agcttttagtg 300  
cttgtttcac tcagatgttt tttgtccact tagccacagc tgtggagacg gggctgctgc 360  
tgaccatggc ttttgaccgc tatgtagcca tctgcaagcc tctacactac aagagaattc 420  
tcacgcctca agtgatgctg ggaatgagta tggccgtcac catcagagct gtcacattca 480  
tgactccact gagttggatg atgaatcatc tacctttctg tggetccaat gtggttgtcc 540  
actcctactg taagcacata gctttggcca ggtagcatg tgetgacccc gtgccagca 600  
gtctctacag tctgattggg tcctctctta tgggtgggctc tgatgtggcc ttcattgctg 660  
cctcctatat cttaattctc agggcagtat ttgatctctc ctcaaagact gctcagttga 720  
aagcattaag cacatgtggc tcccatgtgg gggttatggc tttgtactat ctacctggga 780  
tggcatccat ctatgcggcc tgggtggggc aggatatagt gcccttgac acccaagtgc 840  
tgctagctga cctgtacgtg atcatccag ccactttaaa tcccatcatc tatggcatga 900  
ggaccaaaca attgctggag ggaatatgga gttatctgat gcactgtcct ctttgaccac 960  
tccaacctgg gttcatgaac a 981

<210> 81  
<211> 317  
<212> PRT  
<213> Homo sapiens

<400> 81  
Met Leu Gly Pro Ala Tyr Asn His Thr Met Glu Thr Pro Ala Ser Phe  
1 5 10 15

Leu Leu Val Gly Ile Pro Gly Leu Gln Ser Ser His Leu Trp Leu Ala  
20 25 30

Ile Ser Leu Ser Ala Met Tyr Ile Ile Ala Leu Leu Gly Asn Thr Leu  
35 40 45

Ile Val Thr Ala Ile Trp Met Asp Ser Thr Arg His Glu Pro Met Tyr  
50 55 60

Cys Phe Leu Cys Val Leu Ala Ala Val Asp Ile Val Met Ala Ser Ser  
 65 70 75 80  
 Val Val Pro Lys Met Val Ser Ile Phe Cys Ser Gly Asp Ser Ser Ile  
 85 90 95  
 Ser Phe Ser Ala Cys Phe Thr Gln Met Phe Phe Val His Leu Ala Thr  
 100 105 110  
 Ala Val Glu Thr Gly Leu Leu Leu Thr Met Ala Phe Asp Arg Tyr Val  
 115 120 125  
 Ala Ile Cys Lys Pro Leu His Tyr Lys Arg Ile Leu Thr Pro Gln Val  
 130 135 140  
 Met Leu Gly Met Ser Met Ala Val Thr Ile Arg Ala Val Thr Phe Met  
 145 150 155 160  
 Thr Pro Leu Ser Trp Met Met Asn His Leu Pro Phe Cys Gly Ser Asn  
 165 170 175  
 Val Val Val His Ser Tyr Cys Lys His Ile Ala Leu Ala Arg Leu Ala  
 180 185 190  
 Cys Ala Asp Pro Val Pro Ser Ser Leu Tyr Ser Leu Ile Gly Ser Ser  
 195 200 205  
 Leu Met Val Gly Ser Asp Val Ala Phe Ile Ala Ala Ser Tyr Ile Leu  
 210 215 220  
 Ile Leu Arg Ala Val Phe Asp Leu Ser Ser Lys Thr Ala Gln Leu Lys  
 225 230 235 240  
 Ala Leu Ser Thr Cys Gly Ser His Val Gly Val Met Ala Leu Tyr Tyr  
 245 250 255  
 Leu Pro Gly Met Ala Ser Ile Tyr Ala Ala Trp Leu Gly Gln Asp Ile  
 260 265 270  
 Val Pro Leu His Thr Gln Val Leu Leu Ala Asp Leu Tyr Val Ile Ile  
 275 280 285  
 Pro Ala Thr Leu Asn Pro Ile Ile Tyr Gly Met Arg Thr Lys Gln Leu  
 290 295 300  
 Leu Glu Gly Ile Trp Ser Tyr Leu Met His Cys Pro Leu  
 305 310 315

<210> 82  
 <211> 982  
 <212> DNA  
 <213> Homo sapiens

<400> 82  
 ttgatgctgg gtccagctta caaccacaca atggaaaccc ctgcctcctt cctccttggtg 60  
 ggtatcccag gactgcaatc ttcacatctt tggctgggta tctcactgag tgccatgtac 120  
 atcatagccc tgttaggaaa caccctcatc gtgactgcaa tctggatgga ttccactcgg 180  
 catgagccca tgtattgctt tctgtgtggt ctggctgctg tggacattgt tatggcctcc 240  
 tcggtgggtac ccaagatggg gagcatcttc tgctcgggag acagctccat cagctttagt 300  
 gcttggtttca ctcagatggt ttttgtccac ttagccacag ctgtggagac ggggctgctg 360  
 ctgaccatgg cttttgaccg ctatgtagcc atctgcaagc ctctacacta caagagaatt 420  
 ctcacgcctc aagtgatgct gggaatgagt atggcgcgtc ccatcagagc tgtcacattc 480

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atgactccac tgagttggat gatgaatcat ctacctttct gtggctccaa tgtggttgtc 540
cactcctact gtaagcacat agctttggcc aggttagcat gtgctgacct cgtgcccagc 600
agcctctaca gtctgattgg ttctctctct atggtgggct ctgatgtggc cttcattgct 660
gcctcctata tcttaattct cagggcagta tttgatctct cctcaaagac tgctcagttg 720
aaagcattaa gcacatgtgg ctcccatgtg ggggttatgg ctttgtacta tctacctggg 780
atggcatcca tctatgcggc ctgggtgggg caggatatag tgcccttgca caccgaagtg 840
ctgctagctg acctgtacgt gatcatccca gccactttta atcccatcat ctatggcatg 900
aggaccaaac aattgctgga ggaatatgga agttatctga tgcacttcct ctttgaccac 960
tccaacctgg gtccatgaac aa                                     982

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<210> 83  
 <211> 324  
 <212> PRT  
 <213> Homo sapiens

<400> 83

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Leu | Gly | Pro | Ala | Tyr | Asn | His | Thr | Met | Glu | Thr | Pro | Ala | Ser | Phe |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |
| Leu | Leu | Val | Gly | Ile | Pro | Gly | Leu | Gln | Ser | Ser | His | Leu | Trp | Leu | Ala |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     |     | 30  |     |
| Ile | Ser | Leu | Ser | Ala | Met | Tyr | Ile | Ile | Ala | Leu | Leu | Gly | Asn | Thr | Leu |
|     |     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |
| Ile | Val | Thr | Ala | Ile | Trp | Met | Asp | Ser | Thr | Arg | His | Glu | Pro | Met | Tyr |
|     |     |     | 50  |     |     |     | 55  |     |     |     |     | 60  |     |     |     |
| Cys | Phe | Leu | Cys | Val | Leu | Ala | Ala | Val | Asp | Ile | Val | Met | Ala | Ser | Ser |
|     |     |     | 65  |     |     |     | 70  |     |     |     | 75  |     |     |     | 80  |
| Val | Val | Pro | Lys | Met | Val | Ser | Ile | Phe | Cys | Ser | Gly | Asp | Ser | Ser | Ile |
|     |     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |
| Ser | Phe | Ser | Ala | Cys | Phe | Thr | Gln | Met | Phe | Phe | Val | His | Leu | Ala | Thr |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |
| Ala | Val | Glu | Thr | Gly | Leu | Leu | Leu | Thr | Met | Ala | Phe | Asp | Arg | Tyr | Val |
|     |     |     | 115 |     |     |     | 120 |     |     |     |     | 125 |     |     |     |
| Ala | Ile | Cys | Lys | Pro | Leu | His | Tyr | Lys | Arg | Ile | Leu | Thr | Pro | Gln | Val |
|     |     |     | 130 |     |     |     | 135 |     |     |     | 140 |     |     |     |     |
| Met | Leu | Gly | Met | Ser | Met | Ala | Val | Thr | Ile | Arg | Ala | Val | Thr | Phe | Met |
|     |     |     | 145 |     |     |     | 150 |     |     | 155 |     |     |     |     | 160 |
| Thr | Pro | Leu | Ser | Trp | Met | Met | Asn | His | Leu | Pro | Phe | Cys | Gly | Ser | Asn |
|     |     |     |     | 165 |     |     |     |     | 170 |     |     |     |     | 175 |     |
| Val | Val | Val | His | Ser | Tyr | Cys | Lys | His | Ile | Ala | Leu | Ala | Arg | Leu | Ala |
|     |     |     | 180 |     |     |     |     | 185 |     |     |     |     | 190 |     |     |
| Cys | Ala | Asp | Pro | Val | Pro | Ser | Ser | Leu | Tyr | Ser | Leu | Ile | Gly | Ser | Ser |
|     |     |     | 195 |     |     |     | 200 |     |     |     |     | 205 |     |     |     |
| Leu | Met | Val | Gly | Ser | Asp | Val | Ala | Phe | Ile | Ala | Ala | Ser | Tyr | Ile | Leu |
|     |     |     | 210 |     |     |     | 215 |     |     |     | 220 |     |     |     |     |
| Ile | Leu | Arg | Ala | Val | Phe | Asp | Leu | Ser | Ser | Lys | Thr | Ala | Gln | Leu | Lys |
|     |     |     | 225 |     |     |     | 230 |     |     | 235 |     |     |     | 240 |     |
| Ala | Leu | Ser | Thr | Cys | Gly | Ser | His | Val | Gly | Val | Met | Ala | Leu | Tyr | Tyr |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
|     |     |     |     | 245 |     |     |     |     |     | 250 |     |     |     |     |     | 255 |
| Leu | Pro | Gly | Met | Ala | Ser | Ile | Tyr | Ala | Ala | Trp | Leu | Gly | Gln | Asp | Ile |     |
|     |     |     | 260 |     |     |     |     | 265 |     |     |     |     | 270 |     |     |     |
| Val | Pro | Leu | His | Thr | Gln | Val | Leu | Leu | Ala | Asp | Leu | Tyr | Val | Ile | Ile |     |
|     |     |     | 275 |     |     |     | 280 |     |     |     |     | 285 |     |     |     |     |
| Pro | Ala | Thr | Leu | Asn | Pro | Ile | Ile | Tyr | Gly | Met | Arg | Thr | Lys | Gln | Leu |     |
|     | 290 |     |     |     |     | 295 |     |     |     | 300 |     |     |     |     |     |     |
| Leu | Glu | Gly | Ile | Trp | Ser | Tyr | Leu | Met | His | Phe | Leu | Phe | Asp | His | Ser |     |
| 305 |     |     |     |     | 310 |     |     |     |     | 315 |     |     |     |     | 320 |     |
| Asn | Leu | Gly | Ser |     |     |     |     |     |     |     |     |     |     |     |     |     |